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THE TREATMENT OF EARLY MENTAL CASES WITHOUT CERTIFICATION.

It has long been recognised that there is a great need of neurological and psychiatrical clinics attached to general hospitals, or of special clinics with hospitals for the treatment of mental disorder in borderland cases—in cases of psychoneuroses and psychoses in the remedial or curable stage—such as existed for soldiers and ex-soldiers who were receiving a pension. The public, not cognisant of all the facts, naturally wish to know why this principle, which worked well with the army and pensions, cannot be applied to the civilian population. But the conditions are different; while a man was in the army he was as safely under control as if he were certified, and if he ran away he could be treated as a deserter. The Ministry of Pensions had not so much control, although the pension could be withheld if suitable treatment were refused. The difficulty with the voluntary boarder is, that however dangerous he may be to himself or others, he cannot be kept under restraint in a mental hospital against his wish at present for more than 24 hours. Either the State must provide legal machinery whereby certifiable cases can be detained for a period of probation with the consent of the friends—notification having been made to the Board of Control or to some other properly constituted authority, to prevent wrongful detention—or such patients must be discharged to friends, who must be told that the patient will have to be certified. If legal objection is raised to detention against the patient's wish, at any rate a minor might, with the consent and expressed wish of parents or guardians, be detained under such conditions. Such a provision is especially desirable in that a large number of early cases in the remedial stage occur at puberty and in early adolescence. If the patient has to be discharged in a condition in which it was deemed that his mental stage necessitated certification, this could either be done in the customary way through the relieving officer, or a medical man from the outside could be called to certify the patient under an urgency order for removal to an asylum for certified lunatics. If the patient had no friends a visiting justice might suffice; the patient would then be handed over to the relieving officer and taken to the infirmary and there certified and sent to an asylum. The former method is much more likely to succeed in getting the patient in the early curable stage.

EXISTING MENTAL HOSPITALS AND THE TREATMENT OF EARLY CASES.

All cases not definitely diagnosable as incurable should, if sent to a county or borough asylum, be received in a hospital, apart from the main building, and treated on lines indicative, as far as possible, of cure. Economic difficulties will arise, as there are few asylums in which suitable buildings exist. Every mental hospital should have an out-patients' clinic attached—or, better, affiliated with a clinic outside the asylum grounds, and especially adapted and equipped for the treatment of early mental cases. Great advantages from both an economic and curative point of view might be expected from these out-patients' clinics. Patients could be discharged on trial from mental hospitals earlier and their progress watched. It would be desirable to have separate days for these patients to attend, so that they did not mix with cases that had never been in an asylum. The treatment could be continued and prophylactic measures by social workers carried out. Practitioners would be induced to send cases earlier, and there would be far less objection on the part of friends and the patients themselves, than of their being sent to the infirmaries. It would be better if they were designated "neurological and psychiatric clinics," as experience shows much less objection would arise in getting borderland and early cases of mental disorder to attend if the word "mental" was omitted.

ASYLUMS CALLED MENTAL HOSPITALS.

It will not suffice to call asylums mental hospitals, in spite of the fact that in the past alienist physicians and commissioners in lunacy protested against the implication that these institutions (with few exceptions) did not practise hospital methods of treatment.

It is now generally recognised that it is unwise as it is unjust to treat early curable cases in the same institutions as chronic incurables. It is unwise to put any patient in whom there is a hope of recovery in an atmosphere where despair of recovery exists. Mental depression is not likely to be removed in a new patient by the information of a chronic patient that he has been in an asylum, 5, 10, 15, or 20 years, and the feeling "All hope abandon, ye who enter here" may thereby be installed in his mind and become firmly fixed. In a few asylums it is pleasing to note that there is a villa for acute cases and another for convalescent cases, so that a patient may never be herded with the chronic incurable cases. Such a provision should be compulsory in every asylum which receives acute and therefore curable cases. It is desirable that the nurses should have had a general hospital training. It would be a great advantage if such female nurses were employed in the care of male patients. It would be necessary for a small staff of male attendants to be available, but they should be under the control and direction of a trained hospital sister. These institutions may be rightly designated, then, mental hospitals. Such provisions would be a satisfaction to a large section of the public and tend to allay a widespread feeling of distrust regarding the present treatment of early cases of mental disease.

DIFFICULTIES OF REFORM.

It may be urged that however necessary are these reforms in provision of separate hospitals for the treatment of acute curable cases, the ratepayer will exclaim against the cost; in this respect propagandist work is necessary to explain to the overburdened taxpayer, for whom I have the greatest sympathy, that the cost of maintenance need not be increased, but that the rates should be more wisely spent, on the principle that the first duty of the authorities is to prevent disease, failing that to cure disease, and failing that to prolong life and relieve suffering. This can be done as follows.

1. By endeavouring to prevent disease—that is, by mental hygiene on the lines adopted by the National Committee of Mental Hygiene of the United States of America. This was founded in 1916; its secretary is Mr. Clifford Beers, who wrote a remarkable book, "A Mind that Found Itself." In this he describes his own treatment, and shows how almost everything was done except the right thing to restore him to mental health. The National Committee Executive consists of a number of well-known men, and Colonel T. W. Salmon is the medical director. Since 1917 it has issued a quarterly journal termed *Mental Hygiene*, which contains valuable articles and investigations upon the lines set forth in the following statement of the general purposes of the Society:—

The National Committee for Mental Hygiene and its affiliated state societies and committees are organised to work for the conservation of mental health; to help prevent nervous and mental disorders and mental defect; to help raise the standards of care and treatment for those suffering from any of these disorders or mental defect; to secure and disseminate reliable information on these subjects and also on mental factors involved in problems related to industry, education, delinquency, dependency, and the like; to aid ex-service men disabled in the war; to coöperate with federal, state, and local agencies, and with officials and with public and private agencies whose work is in any way related to that of a society or committee for mental hygiene. Though methods vary, these organisations seek to accomplish their purposes by means of education, in encouraging psychiatric social service, conducting surveys, promoting legislation, and through coöperation with the many agencies whose work touches at one point or another the field of mental hygiene.

When one considers the large groups of people who may be benefited by organised work in mental hygiene, the importance of the general purposes of the above-described movement at once becomes apparent. Such work is not only for the mentally disordered and those suffering from mental defects, but also for all those, who, through mental causes, are unable so to adjust themselves to their environments as to live happy and efficient lives.

2. By adequate provision of separate properly equipped buildings for the treatment on modern hospital and scientific lines of early curable and borderland cases, uncertified for a period of time, with legal provision against their improper detention, thus avoiding the stigma of asylum detention. Having regard to the financial difficulties, it might be urged that so far as possible, where a group of asylums exists under one authority, endeavours should be made to send acute recoverable cases to those asylums more suitably constructed and more adequately equipped for their treatment.

3. All incurable and chronic cases segregated, but classified in such a way that adequate and proper treatment can be afforded them. Prior to the war it was calculated that 5000 of the 20,000 lunatics in the London County Council Mental Hospitals had been resident 20 years or more, and 10,000 ten years or more.

A large proportion of the £1 8*s*. 7*d*. per week which such patients now cost in the London County Mental Hospitals is expended on maintenance and pay of the staff and its three eight-hour shift system. This does not include the cost of buildings and their upkeep, which is heavy. When will the public realise that it is brains, not bricks, that are wanted?

RESEARCH.

Expenditure upon intensive scientifically conducted research in hospitals and laboratories into the causes, prevention, and treatment of insanity by skilled, properly-paid medical officers and social workers, is likely to be of more use and more economical in the end than expenditure on magnificent and costly buildings. For 20 years I was endeavouring to awaken the authorities to the necessity of combating venereal disease, for it was overwhelmingly proved that syphilis, besides being the sole cause of general paralysis of the insane, is also a very frequent cause of mental deficiency and organic dementia, yet nothing was done until the Royal Commission on Venereal Disease in 1914.

EDUCATIONAL.

The war has shown the great need of systematic teaching of psychological medicine as part of the medical curriculum. In 1907[1] I strongly advocated this teaching for post-graduates, and suggested that a diploma of psychological medicine should be instituted, for I felt sure that it would raise the tone of medical men employed in the care of the insane and lead to better diagnosis and treatment of mental disease in the early curable stage. I also advocated the establishment of a psychiatrical clinic in London, where incipient and borderland cases could be seen and treated. I was convinced in 1907 that the institution of a diploma in psychological medicine would prove as valuable as the diploma of public health, and I called upon the President of the Royal College of Physicians to try to induce the Royal Colleges to give such a diploma, but I was quite unsuccessful. Just prior to the war Cambridge University led the way and instituted such a diploma, and now many universities and the Royal Colleges give diplomas of psychological medicine. The systematic teaching of psychological medicine has been in operation now for two years at the Maudsley Hospital. Four courses have been completed, and the fifth course commenced to-day (Oct. 10th). These classes have been well attended, and a large number of graduates and medical officers have obtained diplomas in psychological medicine. This has produced a new spirit among the medical officers of the London County Mental Hospitals—a spirit fostered, I am pleased to say, by the Mental Hospitals Committee of the London County Council; moreover, the possession of the diploma is becoming indispensable for senior appointments, and it is more and more being recognised that administrative capacity is not the only qualification necessary for the post of superintendent or of senior medical officer.

NEGLECT OF MEDICAL PSYCHOLOGY IN THE PAST.

Sir George Newman, in an admirable report on medical education in 1920, stated: "It is deplorable that the English student of medicine should have no opportunity of learning modern methods of psychiatry or of diagnosing incipient and undeveloped cases of mental disease." And yet, in 1913, Parliament imposed statutory duties upon the medical practitioner, among them being, "He must be competent to diagnose all forms of mental disease" (Mental Deficiency Act, 1913). The public might ask why the authorities did not previously insist upon proper training in this important branch of medical education, involving the liberty of the subject. The effects of neglect of training in this important branch of medicine was shown in conscripting for the war. The difficulty regarding the treatment by the Ministry of Pensions of ex-service men in asylums has arisen from the fact that a large number of potential lunatics were admitted into the army, and this might to a great extent have been avoided had medical men known more about incipient mental disease.

DIAGNOSIS AND TREATMENT.

Successful diagnosis is the first step to efficient treatment. To effect this, a well-paid, skilled medical officer of experience, who has recently had a training in psychological medicine, should investigate the case upon admission. To do this efficiently requires time, knowledge, and patience. The examination should commence with a careful inquiry of the friends regarding family history, disposition of patient, and conduct from early childhood onward. An inborn predisposition will often be revealed, and the onset of mental disorder may be shown to have commenced long before the friends, or even the family doctor, knew of it. The patient's mental and bodily condition should be carefully examined. Important indications for treatment by psychotherapy or

[1] Archives of Neurology and Psychiatry, 1907, vol. iii., Preface, p. vii.

medical therapy may be discovered. A careful examination of the bodily condition necessitates a clinical equipment on hospital lines, including a dark room for ophthalmoscopic examination, also a small laboratory with the necessary equipment on modern lines for the complete investigation of the excreta, discharges, blood, secretions, and fluids of the body, such as exists in a general hospital. A certain amount of valuable clinical research could be carried out if these conditions were provided.

CENTRAL RESEARCH LABORATORY.

A central research laboratory should be provided for a group of mental hospitals. This laboratory should have a director and an efficient, adequately paid staff which should collaborate with the asylums of the group, and undertake such skilled routine laboratory investigations as might be needed. The director should promote and advise research in the asylums of the group, and afford help where necessary. The director and his staff should undertake systematic researches in collaboration with the medical superintendents and medical officers, but should retain an independent position. The central laboratory should be equipped with the necessary rooms and appliances for histological, bacterio-biological, chemical, and psycho-physical investigations.

DIET.

Among the other measures of treatment that call for urgent reform is a more liberal diet. The army regulations gave soldiers suffering with nervous and mental disease 3250 calories and extra meat ration; the asylum dietary, even after the armistice, was only 2250 calories, and was deficient in animal fat. A more liberal diet, with a sufficiency of both water-soluble and fat-soluble vitamins, is necessary. It may be urged that patients put on weight when they have resided in asylums for a short time, and they do not suffer with any of the bodily diseases due to vitamin deficiency—viz., scurvy and beri-beri. An acid test of diet in relation to deficiency is the death-rate, especially of those chronic diseases in which deficient vital resistance plays a predominant rôle—e.g., tuberculosis. Another point in connexion with dietary is monotony. People do not realise what an important part the pleasures of the palate play in stimulating the flow of the gastric and digestive juices, and thereby facilitating digestion and assimilation, which, reacting on the whole body, help to remove mental depression.

OCCUPATION IN ASYLUMS.

During the war, in the treatment of war psychoneuroses and psychoses, I found occupation of great value in treatment, but the occupation must be desired by the patient, and he must be interested in it; otherwise it will have no therapeutic value as a means of mental diversion and self-criticism. I took risks, and allowed men who were not always free from the suspicion of suicidal tendencies to work in the carpenter's shop. The success of the carpenter's shop depended upon conditions which were made possible by the generosity and sympathy of Lady Henry Bentinck, who provided a carpenter's shop, fully equipped with all the necessary appliances and a capable instructor. It was not therefore trammelled by army regulations; the men who worked there were interested, because they made what they felt they could make well, and because it became their own to sell if they wished, the only charge made being the cost of the material. Revived self-respect, pride of work, and emulation are necessary if occupation is to be of any therapeutic value in mind-healing. Patients in the asylums who work on the farms have bread and cheese extra, other workers in the laundry, kitchen, workshops, and farm have a little tobacco daily. Almost daily, when the laboratory was at Claybury Asylum, I saw a gang of from 20 to 30 inmates proceeding to work on the farm; many were dragging on a slack rope attached to a very small cart, others carried agricultural implements over their shoulders; the party was preceded by one playing a whistle pipe. I venture to say that one navvy would do more work than the whole party. In the reports these numbers are recorded as so many working on the farm—it just depends on what is meant by work—as a therapeutic measure. If *those who were able* were encouraged to work by reward, if they were permitted to grow fruit, flowers, and vegetables which would be of some profit to them, it would be mental hygiene in the proper sense of the word. I know the extreme difficulties attending occupational treatment, but what is wanted in the asylum administration is more individuality, and less camouflage and stereotyping in the management and treatment of the insane, with a view to cure and making their lives less dreary and monotonous. I have a great belief in the value of song and music as mind healers, and since many patients possess these artistic faculties, it is a proper thing to encourage them in the exercise of it. Bands should play daily in the grounds or building; if that is not possible, gramophones with good cheerful and uplifting records might be used. It is a depressing sight to see these poor creatures seated in a day-room or taking exercise in an airing court, exhibiting brooding, melancholy, or a demential ineptitude, occasionally enlivened by maniacal excitement on the part of one or more of the inmates. Such is the prevailing atmosphere in the chronic wards of an asylum. It must be acknowledged that to some extent this is necessarily unavoidable, owing to the state of mind of the patients. The wards themselves generally are well furnished and bright, and the attendants, having regard to the difficult tasks they have to perform, as a general rule carry out their duties with efficiency and consideration, but there is a stereotyped system without variation, extending even to the air in the wards of some asylums, which can easily be detected by the nose, for there is, generally speaking, a characteristic "omnium gatherum" odour of beeswax, turpentine, stale tobacco, exhalations of human bodies, and soiled clothes; this also to some extent is unavoidable owing to the dislike of open-window ventilation and the large numbers collected in the wards. Variety is the spice of life, but that is just what this institutional life does not provide. Efforts, therefore, should be made to effect changes in the traditional systems prevailing in these great institutions for the care and detention of the mentally afflicted.

In conclusion, I would call attention to the desirability of taking all precautions necessary to avoid the introduction into new asylums of carriers of typhoid, paratyphoid, and dysentery; we should then not witness what has so frequently happened in the past—viz., outbreaks of these infective bowel diseases and their installation in the institution to the continuous danger of patients admitted for the care of their mental affliction. Once introduced, owing to the habits of the patients and the difficulties attending the discovery of these carriers, it is almost impossible to eradicate the infection.

Many of the suggestions and reforms which I have indicated were proposed by Dr. Hubert Bond, a Commissioner in Lunacy, in his presidential address to the Medico-Psychological Association, 1921.

LIGUE D'HYGIÈNE MENTALE.

A Ligue d'Hygiène Mentale was formed on Dec. 8th, 1920, under the patronage of the French Minister of Health. It is subsidised by the General Council of the Department of the Seine, and by the Municipal Council of Paris. The objects of this league are on very much the same lines as the National Committee of Mental Hygiene. Dr. Colin recognises the great importance of prophylaxis, and he points out that insanity is, in a great number of cases, curable and avoidable, and that it is so much the more curable the earlier it is treated.

It is hoped that the recently appointed Committee of Mental Hygiene, of which Sir Courtauld Thompson is president, will receive support in carrying out a programme of mental hygiene for this country on somewhat similar lines to that of the United States.

Remarks ON CHRONIC ENDOCERVICITIS AND ITS TREATMENT.

An Address to the North of England Obstetrical and Gynæcological Society

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FROM a close study of 84 cases of uncomplicated endocervicitis, its bacteriology, pathology, and treatment, I am convinced that the condition as a distinct pathological entity is worthy of more scientific attention than is accorded it in most modern text-books. The condition is probably responsible for many cases of sterility; it is infective, and a certain amount of absorption of poisonous bodies from the infected area must take place, accounting for the anæmia and debility from which the patients usually suffer.

Chronic endocervicitis, an inflammatory process involving the cervical tissues—particularly the lining membrane of the cervical canal—is due to the presence of bacteria, and forms a distinct pathological entity apart from endometritis. According to Curtis,[1] the cervical mucosa is very susceptible to infection, while the corporeal endometrium is practically immune. De Lee [2] affirms that the closed cervix is infected in its lower third, the signs of infection disappearing as the upper third is reached. The work of Sturmdorf[3] and Curtis confirms this. In the majority of cases which I have investigated, signs and symptoms referable to the body of the uterus—such as tenderness, enlargement of the body, or changes in the menstrual function, as menorrhagia or metrorrhagia—have been completely absent. Also eradication of the infected area of the cervical canal without interference with the interior of the uterus leads to complete restoration of the patient's health.

ÆTIOLOGY.

The condition is common to all women, the incidence in my series being highest in multiparæ between 30 and 40 years, next in those between 20 and 30 years, and least in young unmarried girls. The disease arises as a result of infection from without—direct, as infection of the cervical canal in gonorrhœa, or of cervical wounds received during labour or operation, or, as in the case of the young girl with intact hymen, infection spreading upwards from the external genitals. This latter mode of infection may be denied by those who hold that vaginal secretion prevents infection travelling upwards. Under certain abnormal conditions I have reason to believe this mode of infection possible.

Normally the vaginal secretion is acid, and the cervical secretion alkaline. The amount of cervical secretion is, as a rule, small, apart from menstruation; consequently its neutralising action upon the vaginal secretion only extends to the vicinity of the os and the posterior fornix in a normally situated uterus. If from any cause the cervical secretion is greatly increased, as in endocervicitis, the acidity of the vaginal secretion is reduced almost to the point of neutrality throughout the vagina. As a result of this the bacteria, which are usually numerous in the lower portion of the vagina, have little difficulty in spreading up along the warm column of fluid, which is, as a rule, only faintly acid in these cases. In those cases of endocervicitis in the virgo intacta investigated by me, five showed certain stigmata usually associated with masturbation, and three admitted the fact. Sexual excitation is accompanied by congestion of the pelvic organs and, if frequently indulged in, brings about a condition approaching chronic congestion. This congestion induces hypersecretion of the cervical glands—in other words, leucorrhœa. The external genitals become bathed in this vaginal discharge, the bacteria which are always present spread up to the cervix, and the glands become infected. Once the glands are infected the presence of the organisms and their toxins keep up the hypersecretion, and so the condition of endocervicitis is established.

SYMPTOMATOLOGY.

The predominant symptom in all cases is the vaginal discharge and the discomfort arising therefrom. This discharge varies greatly in colour, consistence, and quantity; the most usual type is the thick white mucoid, but it may be thin, white, yellow, or green. It is extremely difficult to gauge the amount of discharge, but an idea may be arrived at from the number of diapers used by a patient of cleanly habits in a certain time. The discharge is usually more profuse in the morning and just before and after menstruation. In those cases in which there has been a preceding history of gonorrhœal infection the discharge has a tendency to retain the yellow colour and is usually muco-purulent. The other symptoms are general debility, lassitude, anæmia, backache, and constipation. It would seem that the general ill-health is due in no small measure to the absorption of poisonous bodies from the infected cervical canal. In about 95 per cent. of these cases chronic constipation is also present. If these two conditions are dealt with the patient usually makes a rapid recovery. The menstrual function does not seem to be influenced to any marked extent in these cases of endocervicitis, and only a small proportion of my series complained of dysmenorrhœa. About one-third of the cases complained of pain in the left side—possibly due to the loaded condition of the lower bowel or to a varicose condition of the veins of the left broad ligament.

Pruritus.

This distressing condition is not infrequently complained of. According to Dr. Leslie Roberts, it may be followed by a dry, scaly, patchiform eruption, probably due to the growth of the *Staphylococcus albus*. In 11 of my cases complaining of irritation I have been able to demonstrate an adherent præputium clitoridis—a condition very similar to that found on young boys with long tight foreskins. Beneath the prepuce one can usually find small sago-grain-like particles of inspissated smegma. That the pruritus may be produced by this condition is proved by the fact that a cure is at once brought about by freeing the prepuce and clearing away the granules. I regard this condition as a very potent factor in the production of "bad habits" in young girls at puberty; as already pointed out above, it may be the primary factor in giving rise to the type of endocervicitis found in the virgo intacta.

Sterility.

Knowing the disease to be an infective one, it might be expected that sterility would play a large part in the symptomatology. In my series the analysis is as follows:—

Percentage.	
37	sterile though exposed to conception.
39	one or more children, no miscarriages.
25	" " " one or more miscarriages.
2	miscarriages only.

While these figures are interesting, the number of cases examined is too small to base any definite conclusions upon. At the same time, it is only reasonable to expect that an infective condition such as this is would present a definite bar to normal conception.

PATHOLOGY.

Endocervicitis may be divided into two forms, acute and chronic. The acute form, usually found in gonorrhœa and following infection of cervical wounds due to labour or operation, is seldom recognised as a separate pathological entity. The chronic form may follow the acute or may arise as a chronic condition per se. The naked-eye appearances vary considerably. The cervix may appear quite normal except for the thick tenacious yellowish mucus issuing from the os, and may or may not be hypertrophied; in long-

standing cases it is usually hypertrophied and harder than normal. The same holds good with regard to erosion; the longer the condition has existed the bigger the erosion. In some cases the erosion is confined to the posterior lip. This is usually found in association with retroversion. The size of the erosion depends largely upon the area of the cervix which is constantly bathed in the pathological fluid which collects in the posterior fornix. Old lacerations may also be seen. Microscopical sections taken vertically through the cervix so as to include the canal, the erosion, and the healthy portion of the vaginal surface show: 1. Glands hypertrophied, epithelium well formed and showing goblet cell formation. 2. Blocked gland ducts. 3. Small dilated cysts lined by low cubical epithelium. 4. Areas in which the pavement epithelium has been shed. 5. Small round cell infiltration around the basement membrane of the glands. Scattered areas of small round cells throughout the cervical tissues and particularly well marked beneath the eroded area. 6. A varying degree of fibrosis.

A few or all of these characteristics can be seen in any section. In some cases the eroded area appears to be composed of hypertrophied and dilated gland tissue—i.e., papillary erosion. In others the eroded area presents the appearance of a healthy granulating surface—granular erosion. Both these forms are apt to bleed easily on touching and so are liable to be mistaken for early malignancy, especially in elderly women.

Bacteriology.

A bacteriological examination of the cervical canal is not simple; unless very great care is exercised contamination of the swab is likely to take place by touching the vaginal wall, vaginal surface of the cervix, or the speculum, thus rendering the examination useless. The routine method I have found easiest, which at the same time minimises the risks of contamination, is as follows: The patient is placed in the dorsal position with the knees drawn up. A sterilised glass Ferguson speculum is passed and manœuvred until the cervix fits snugly into its upper end. Sometimes there is difficulty in getting a good view of the os owing to the backward projection of the cervix into the posterior fornix. This can be obviated by pulling on the anterior lip with a sharp hook. The cervix having been thoroughly exposed is wiped dry and clean with sterilised gauze swabs, and a sterile throat swab is pushed into the cervical canal and rotated. The swab is replaced in a sterile test-tube and conveyed to the laboratory and several media inoculated. These media are examined in 24 hours and 48 hours. Out of 66 cases of chronic endocervicitis investigated in this way three had a definite clinical history of gonorrhœal infection one to two years previously.

Results of bacteriological investigation of cases:—

Total cases examined	66
Percentage of positive growths in 24 hrs.	92·43
„ „ negative „ in 24 and 48 hrs.	7·57

Types of organisms found:—	Percentage.
Staphylococcus albus	48·48
„ „ and *B. coli*	7·57
„ „ „ *Streptococcus*	6·06
„ „ „ *Gonococcus*	3·93
„ „ „ *M. catarrhalis*	1·51
„ „ „ *Tetragenus*	1·51
Staphylococcus aureus	1·51
„ „ and *Streptococcus*	1·51
Streptococcus	6·06
B. coli	13·63
„ and *Tetragenus*	1·51

It will be seen from this that staphylococcus, either alone or in association with some other organism, is by far the commonest inhabitant of this region. In 18 per cent. of the cases investigated dermatitis was present, causing intense irritation. This dermatitis varies considerably in extent; in most cases confined to the vulva, in one of them it had spread extensively over the thighs, and in another practically all over the body. This dermatitis is probably caused by the staphylococcus, whose increased virulence is due to its sojourn in the cervical canal.

TREATMENT.

From a study of the microscopical sections and from the fact that the condition is infective, with bacteria in the glands, treatment, to be of any avail, must obviously remove the causal agent. Most of the methods advocated do not achieve this removal, and thereby either fail to bring about a cure or give only temporary relief. Some of these methods are caustic, curetting, douching, tampons of various makes and ingredients, and some forms of trachelorrhaphy. To deal with these seriatim:—

Drugs and Caustics.—Most of these only bring about a temporary cure, killing off bacteria on the surface of the canal, but not reaching those deep in the lumen of the glands. In fact, many of them form with the mucus present a protective covering for the bacteria in the deep tissues. As soon as the antiseptic effect has worn off the bacteria come out and reinfect the surface again.

Curetting.—It is impossible to remove either the gland tissue of the lower two-thirds of the canal or the bacteria with any curette. Moreover, a raw surface is left to heal as best it can in doubtful surroundings.

Douching.—This type of treatment is still largely used; many women are condemned to douche two or three times daily in order to gain a little comfort. To my mind douching is a confession of failure on the part of the doctor who orders it; it cannot possibly cure, and it tends to keep up the discharge by inducing congestion and so hypersecretion of the cervical glands. There is also the danger of introducing bacteria from the outside into the upper portion of the vagina.

Trachelorrhaphy.—Most operations on the cervix, it seems to me, were devised without due regard to the bacteriology of the cervical canal. One is advised in almost all these operations to leave the mucous membrane of the canal intact in order to prevent stenosis, and because of this infected mucous membrane many of these operations prove failures.

Vaccines.—During 1914 and the early part of 1915 I treated, along with Dr. John E. Gemmell, some 33 cases of chronic endocervicitis with vaccines. Autogenous vaccines were used in each case, the injections being given weekly in increasing doses until a good local reaction was obtained. No vaginal treatment was adopted in the majority of cases. While many of the cases admitted "feeling better in themselves" during the period of the injections, so far as the vaginal condition was concerned the treatment was disappointing. Having given an extensive trial to all the above methods, and finding them unsatisfactory, I determined to seek "fresh fields and pastures new." Sloan[4] and Somerville[5] reported very good results in the treatment of endometritis with ionisation. It was from reading their articles that I conceived the idea of applying ionisation to the cervix alone in these cases of endocervicitis.

Ionisation.

On theoretical grounds at least ionisation seems to be the only scientific method of applying antiseptics to the cervical canal. In endocervicitis the bacteria are in the gland lumen, and for a cure the antiseptic must be brought into contact with them. It is thus necessary to increase the penetrative power of the drug used, and for this purpose electricity appears to be the only means at our disposal. Gautier,[6] experimenting on the uterus of a rabbit, found he got penetration through the entire uterine wall by using a copper electrode with an electric current of 20 milliampères for 10 minutes. The thickness of the rabbit's uterus is about one millimetre; the thickness of the lining of the human cervical canal is seldom as much as one millimetre. If penetration of our antiseptics to the depth of one millimetre all round the cervical canal is possible, there is a reasonable hope that the bacteria in the lumen of the glands will be reached.

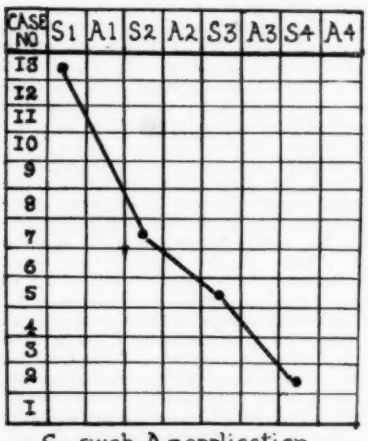
Method of Application.

The patient is placed in the dorsal position with the knees drawn up. A medium-sized glass Ferguson speculum is passed until the cervix fits into the upper end. The os is dried and cleaned by means of small

sterilised gauze swabs. A swab for bacteriological purposes is then taken from the cervical canal. The reaction of the cervical canal is then taken by means of a roll of litmus paper. A malleable zinc sound is passed into the cervical canal for about one inch or one and a half inches, the speculum is half filled with 0·5 per cent. zinc sulphate solution. The zinc rod is connected with the positive pole of the galvanoset, the negative pole of which is applied to the patient's thigh by means of a metal plate superimposed upon two or three pads of gauze and lint wrung out of warm water. The current is slowly switched on and raised until the milliampèremeter reads 20 milliampères. It is allowed to run 10 or 15 minutes, the os and cervical canal will then be seen to be coated with a thick white deposit. At the end of the requisite period the current is cut off and the sound removed. The zinc sulphate is mopped out, and a strip of gauze soaked in acriflavine (1 : 1000) is introduced into the vagina and removed at the end of 24 hours. This treatment is repeated weekly for three weeks, during which no douching or intercourse is permitted. The external genitals are washed with warm soap and water night and morning and kept quite dry. Three applications are usually sufficient to render the cervical canal sterile.

The graph illustrates the effect of zinc ions in sterilising the cervical canal. I selected 13 cases in which the first swab proved positive. Ionic applications of 20 milliampères for 10 minutes were made every seven days and a swab taken before each application.

Graph Showing Effect of Zinc Ions in Sterilisation of the Cervical Canal.



In 13 cases in which the first swab was positive 7 remained positive after the first application, 5 after the second, and only 2 after the third.

Beyond some slight backache for 48 hours following the application, the patients seldom complain of any discomfort. In one case in which there was a history of gonorrhœa 18 months previously a very acute attack of pelvic inflammation was set alight within 48 hours. In another case the uterus was retroflexed and the menorrhagia from which the patient complained was made very much worse by the applications. The majority of the patients treated in this way had been complaining of the vaginal discharge for years, and had experienced practically every type of treatment without relief. Coincident with the sterilising of the cervical canal a great improvement takes place in the general health of the patient.

The following is an analysis of the cases treated by ionisation. The cases with erosion numbered 16, the cases without erosion 20, making a total of 36.

Cases with Erosion:—Two were definitely cured—i.e., erosion healed, no discharge for a period of three to four months following treatment. One case which had been under treatment for 12 months for gonorrhœa developed symptoms of acute pelvic inflammation following the second application. Eight cases showed improvement in so far as the amount of discharge was concerned; the erosion remained in statu quo ante even after six applications. Two cases were not improved at all. Three did not carry out the full course of treatment.

Cases without Erosion:—Thirteen were cured—i.e., no discharge and no discomfort for a period of one to four months following treatment. One case, in which a supravaginal hysterectomy had been performed some years previously, was not improved even after seven applications. One case, in which post-climacteric changes in the uterus and vagina were marked, resisted all treatment. One case, associated with retroflexion of the uterus, seemed to be aggravated by the applications. Four cases did not carry out the full course of treatment.

It would appear from a study of these results that (*a*) in cases of endocervicitis associated with erosion ionisation will improve matters in so far as the amount of discharge is concerned, but is not of much value in expediting the healing of the erosion; (*b*) in cases of endocervicitis not associated with erosion or with any intra-pelvic abnormality ionisation is of great value; (*c*) cases with some intra-pelvic complication, such as inflammation of the tubes or displacement of the uterus, are not suitable for ionic treatment.

For cases associated with erosion the only treatment which I have found satisfactory is the removal of the erosion and the lower two-thirds of the cervical canal. The operation which I adopted was that devised by Sturmdorf of New York, which has been beautifully described by Matthews.[7] The operation consists in coning out the lower two-thirds of the cervical canal and covering in the raw area with healthy flaps from the vaginal surface of the cervix. The part removed consists of a cone which has for its base the eroded area, its apex the upper third of the cervical canal. By this operation the whole infected portion of the canal is removed. Healing, as a rule, takes place rapidly and the patient can return home after eight or ten days. I use 20-day catgut sterilised in iodine, and allow the sutures to come away. I operated upon 14 cases of chronic endocervicitis, associated with erosion, which had resisted all forms of palliative treatment including ionisation. The majority of these patients had been under treatment for periods varying from six to 18 months. Without exception these patients, within a period of three weeks to a month from the date of their operation, had quite recovered their normal health; all discomfort, including discharge and backache, had disappeared. Sufficient time has not yet elapsed to enable me to express an opinion as to the effect this operation has on conception, pregnancy, or parturition. Magid,[8] in dealing with the obstetrical end-results of this operation, states: "The operation has no unfavourable effect on the possibility of future conception, pregnancy, or delivery." For my own part I see no reason why it should give rise to trouble.

SUMMARY.

1. Chronic endocervicitis should be recognised as a distinct pathological entity, apart from endometritis.

2. Any discharge from the vagina which induces discomfort in the patient is pathological and is usually due to chronic infection of the cervical canal.

3. That the condition is an infective one is proved by the fact that a positive culture can be obtained in 92 per cent. of cases. In 50 per cent. of cases the staphylococcus either alone or in association with some other organism is present.

4. Applications of various drugs, douching, tamponage, &c., only give temporary relief because the antiseptics do not reach the infecting agent deep in the lumen of the glands.

5. Ionisation will bring about marked improvement in those cases in which erosion is not present.

6. For those cases associated with erosion the only method which will bring about a cure is the removal of the lower two-thirds of the cervical canal including the erosion.

I would like to tender my sincere thanks to Dr. John E. Gemmell for his kindness in allowing me to try the effect of vaccines on cases of chronic endocervicitis selected from his out-patients; to Dr. Leslie Roberts for his kindly help and interest, particularly in those cases in which certain skin lesions were associated with the vaginal discharge; and to Dr. L. S. Ashcroft for his help in working out the bacteriology and pathology of the condition.

(*Continued at foot of next page.*)

AN OUTBREAK OF TRICHINIASIS.

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With a Laboratory Note
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BETWEEN April 18th and 26th, 1922, we had under our care 13 patients whose symptoms were so unusual that we called Dr. A. F. Sladden in consultation on April 27th. Thanks to his investigations we were able to diagnose them as cases of trichiniasis. On May 4th Dr. T. Wade, of the Welsh Board of Health, visited Milford Haven, and from the clinical symptoms and blood count he was of the opinion that the patients were suffering from trichiniasis. Trichiniasis is caused by an animal parasite, *Trichina spiralis*. Human beings become infected by eating the flesh of pigs infested with the parasite. In the pig the muscles chiefly involved are the diaphragm, intercostals, and neck muscles, which are mainly used in the preparation of sausages. The trichinæ enter the small intestine, and in about three days attain their full growth and become sexually mature. In six or seven more days embryos are set free, and migrate into the muscles, causing a myositis; in about another 10 days they become encysted in the muscles.

Incidence of the Series.—Eleven were adults and two children, and they were distributed among seven houses in different parts of the town of Milford Haven. There were four cases in one house.

Symptoms.—In all the adult cases, there was some gastro-intestinal disturbance, with pain in the epigastric region. Vomiting occurred in all but four cases; diarrhœa was a marked symptom in seven; headache with œdema of the eyelids and conjunctivæ were present in all cases. The conjunctiva over the outer half of the eyeball was red and œdematous, the eyelids were also œdematous and in some cases completely closed. There was no purulent discharge. Temperature about 102° F., remaining in this neighbourhood for about eight days—in three cases for 14 days. The pulse rate was not at first raised in proportion, but after a week it became rapid on the slightest exertion. The tongue was greyish but clean; later it became red and dry. All adult cases complained of intense muscular pain. The chief muscles involved were those at the back of the neck, arm, and calves. Flexion of the head was painful. There was marked tenderness in the muscles of the calves when moved or squeezed. In some cases the knees were flexed, in others extended; in all cases there was intense pain on any change of position. Two patients complained of pain in the calves on walking downstairs; four had tender spots on the calf muscles, with localised swellings; two complained of a tender spot in the lower end of the biceps humeri, and one had well-marked œdema of the right forearm. In three cases there were well-marked swellings just above and below the zygoma on each side. Knee jerks were present in all but one case; respiration was quiet and shallow. One patient on the fourteenth day complained of great pain and discomfort in the chest, and supported his chest by pressing his hands over the lower ribs. Dyspnœa on the slightest movement was a marked symptom in all the severer cases. In no case was there any involvement of the lungs. There was no skin eruption, except in one case, which on the seventh day of illness developed an abundant rash on the abdomen, similar to that seen in para-typhoid. Sweating was profuse in all cases.

Insomnia was a distressing symptom in most cases, and in two there was wild delirium for five successive nights. The abdomen was a little distended and somewhat resistant. The spleen was not enlarged; there was no albuminuria. Prostration was a marked symptom in all 13 patients; anæmia and great wasting took place in the severest cases. The blood count showed a marked eosinophilia in all cases. Recovery was fairly rapid; most of the cases were up in 14 days, but three were still in bed at the end of the fourth week.

CASE 1.—Male, aged 31. Was away from work between April 8th and 14th, suffering from severe cold. On the 15th complained of pain in right shoulder and in the right infra-clavicular region, with localised sweating in that part. On April 17th had a temperature of 102° and complained of abdominal pain, vomiting, and profuse diarrhœa, which lasted for 10 days. Marked œdema of eyelids and conjunctivæ on the 18th, and pain in the muscles of back of neck and calf muscles, especially on walking downstairs, the foot being brought down in a stamping manner. Well-marked swellings immediately above the zygoma on each side in this case. On the 19th temperature 103°, and it continued above 101° for 14 days when it became normal. Marked sweating, wasting of muscles and anæmia, insomnia and delirium. Patient still in bed in a very weak condition on May 14th.

CASE 2.—Female, aged 31, wife of Case 1. Had griping pains in abdomen on April 18th, œdema of eyelids and conjunctivæ marked on the 19th; temperature 101°, pain in arms and legs, which "felt stiff and heavy." On the 24th temperature normal, no diarrhœa, no vomiting. Sweating profusely. Rapid recovery.

CASE 3.—Male, aged 40. Taken ill on April 18th, with pains in epigastrium and œdema of the eyes; inability to walk properly, stamping gait; pain in muscles of leg and in neck. On the 19th temperature 103°, with severe vomiting. On the 20th dyspnœa; temperature 103°, tongue greyish and furred, vomiting; pulse 86. On the 24th profuse rash on abdomen; temperature remained over 100° until May 6th, during which time vomiting, abdominal pain, and pain in muscles of leg were a marked feature. There were some localised swellings in calves in this case. Insomnia very troublesome. Great wasting. Bowels constipated throughout. On May 7th temperature went up again, and he complained of great discomfort in the chest. He lay helpless, afraid to move, supporting chest with both hands. On the 15th temperature became normal. On the 23rd patient still in bed in a very weak and emaciated condition. On May 25th temperature again 102°; patient complained of intense pain in the calves. Pulse became small and intermittent, and patient was in a critical condition until June 7th, when temperature became normal. After a long convalescence patient is now in his usual health.

CASE 4.—Female, aged 37, wife of Case 3. On April 15th pain in stomach, vomiting. On the 18th, when first seen by us, complained of pain in neck and legs. Vomiting and diarrhœa. Temperature 102°, pulse 80. Tongue clean and red, in marked contrast to that of her husband. Sleeplessness. On the 20th some hoarseness and sore throat. Temperature remained over 100° until May 2nd, when it was normal, and remained so. On the 3rd patient got up, still complaining of pain in legs. Has made a good recovery.

CASE 5.—Female, aged 24. Attended at surgery on April 20th complaining of headache and puffiness of eyelids, which commenced on the 18th. On the 23rd calves became painful, hard, and œdematous, very painful on movement. On the 24th vomiting commenced, and continued for five days. Constipation throughout, not much abdominal pain. Pain in biceps and muscles of back of neck. Sweating profuse; temperature 102° until May 6th, when it became normal. Sore throat on the 1st. On the 10th got up, very weak and still sweating; œdema of eyelids still noticeable.

CASE 6.—Female, aged 17. Had diarrhœa on April 16th, which lasted for one week. Seen on the 19th; great œdema of eyelids, which were completely closed, œdema of conjunctivæ, much pain in epigastric region, headache; temperature 102°. On the 20th pain and stiffness in legs and neck. Temperature remained above 100° for a week. Was up on the 28th, legs still feeling stiff and heavy.

CASE 7.—Female, aged 44, mother of No. 6. First complained to us of headache and pain in legs on April 21st. On the 24th great puffiness of eyelids and redness and œdema of conjunctivæ. Pain in right arm, chiefly at insertion of biceps—well-marked œdema of right forearm in its upper half. Could not move head owing to pain in back of neck. Slight diarrhœa and abdominal pain until the 28th. Temperature normal on the 29th, and has since

(*Continued from preceding page.*)

References.—1. Curtis: Matthews, Surg., Gynæc., and Obst., March, 1921. 2. De Lee: Practice of Obstetrics. 3. Matthews: Surg., Gynæc., and Obst., March, 1921. 4. Sloan: Proc. Royal Society of Medicine, vol. ii., 1909; and vol. xiii., 1910. 5. Somerville: Brit. Med. Jour., Jan. 9th, 1909. 6. Gautier: Lewis Jones's Ionic Medication. 7. Matthews: Surg., Gynæc., and Obst., March, 1921. 8. Magid: Obstetrical End-results of the Tracheloplastic Operation, New York Med. Jour. 1921.

remained so. May 5th, got up feeling very weak, with considerable pain in right arm.

CASE 8.—Male, aged 35. Attended surgery on April 26th, complaining of headache and slight puffiness of eyelids. On the 27th conjunctivæ injected and œdematous; eyelids swollen, pain in limbs; temperature 102°, pulse 84. Temperature remained in the neighbourhood of 101° for one week, during which time the patient had considerable pain in calf muscles and neck. No diarrhœa, but had some abdominal pain. Patient made a good recovery and got up on May 4th.

CASE 9.—Female, aged 44, first seen on April 26th, when she complained of swelling of her eyelids and headache. Temperature 101°, slight abdominal symptoms, temperature remained about 101° for five days. May 2nd, patient was up and made a rapid recovery.

The following four cases occurred in the same house:—

CASE 10.—Female, aged 43. First complained to us on April 20th, when eyelids were completely closed with œdema. There was great œdema of conjunctivæ which protruded between the lids. Had complained of headache three days previously; diarrhœa on April 25th with considerable abdominal pain. Slight vomiting, temperature 103°, very delirious at night; sleeplessness; temperature remained above 101° until May 8th, when it became normal. From the outset great pain in calves, and stiffness of arms and neck. Patient lay in a helpless condition with knees flexed. Considerable dyspnœa when moved; great wasting of muscles and anæmia. Patient was up on the 10th, feeling very weak and complaining of loss of memory.

CASES 11 and 12.—Two brothers, aged 8 and 11. Went to Swansea on April 10th and returned on the 16th. Both had small swellings under the zygoma and over the malar bone on both sides; the doctor who saw them in Swansea feared they were going to have mumps. On the 17th temperatures were 102°. Eyelids œdematous; no abdominal symptoms or muscular pain in these two cases, but their temperatures remained over 101° for 10 days. They became thin and anæmic and the swellings on the side of the face remained for about seven days, being similar to those described in Case 1.

CASE 13.—Male, aged 40. Complained on April 20th of pain in arms and legs with marked tenderness over lower end of right biceps. Eyelids and conjunctivæ œdematous; slight diarrhœa and vomiting; temperature 101°. Made a good recovery in eight days.

Treatment.—This consisted in combating the gastro-intestinal symptoms and fever with bismuth, salicylates, and quinine. Later, when the true nature of the disease was apparent, tablets of dimol were administered. It is possible that intravenous injections of antimony tartrate would be of use in view of its success in treating bilharzia infections and some protozoal diseases.

Cause of the Outbreak.—We were able to ascertain that each case had eaten sausages procured from a particular butcher in the town. Cases 1 and 2 ate sausages from this source on April 7th, and the acute symptoms started on April 17th. Case 3 had sausages on the 12th, and Case 4 on the 12th and 15th; acute symptoms started on the 18th. Case 5 had sausages on April 9th; acute symptoms commenced on the 18th. Cases 6 and 7 had sausages on the 8th; acute symptoms started about the 18th. Case 8 had sausages on April 18th, and was taken ill on the 26th. All these patients were the only members of their households who partook of the sausages. Case 9 had sausages on April 18th; her children also partook of these but none was affected. Cases 10, 11, 12, and 13 had sausages from this source frequently up to April 18th.

We found that the butcher in question prepared his sausages from pork bought and slaughtered locally, and the only other ingredient used in their manufacture being biscuit meal. Between March 28th and April 24th 17 pigs from seven different farms were slaughtered by this butcher and made into sausages. We visited the farms, but were unable to find any evidence that would throw light on the outbreak. We have been promised, however, an opportunity of being present at the slaughter of the next batch of pigs from these farms. At one of the farms a rat had been killed in the pig-sty on the date of our visit. This we sent to Dr. Sladden, but he was unable to detect any trichinæ in its body.

Laboratory Investigation by Dr. A. F. SLADDEN.

The clinical aspect of the cases led us to think in the first place of influenza, enteric group, dysentery, or "food-poisoning" group infections as the possible origin of the illness. With this in view I made a personal visit to Milford Haven to consult with Dr. Williams and collect suitable material for laboratory investigations. Blood cultures, in bile-broth and in simple broth (100 c.cm. flasks) were made from two typical acute cases, 1 and 3. No organisms were grown from these. From the same cases serum was obtained and tested with Oxford emulsions by Dreyer's technique with the following organisms (P = positive, N = negative):—

	Serum dilutions.	Case 1.	Case 3.
B. typhosus	1:12 to 1:250	N	N
B. para. A		N	P to 1:20
B. para. B		N	N
B. enteritidis (Gartner)	1:40 to 1:125	N	N
B. aertrycke		N	N
B. dysenteriæ (Flexner) (four strains V, X, Y, Z)		N	N

Case 3 gave a history of "enteric fever" in South Africa 20 years ago; this it will be seen probably accounts for the para. A agglutination. Exudate from the conjunctivæ was removed in capillaries from Cases 1 and 7, but contained no pus, cells, or bacteria of significance.

Blood Counts.

On April 27th, 1922, material was collected for complete blood examination from Cases 1 and 3, and the following figures obtained:—

	Case 1.	Case 3.
Red cells	4,800,000	5,115,000
Leucocytes	12,500	14,500
Polymorphs	6,275	6,322
Small lymphocytes	900	638
Large lymphocytes	775	1,044
Large mononuclears	100	290
Eosinophils	4,450 (35·6%)	6,206 (42·8%)

The intense eosinophilia in each case of course at once attracted attention, and it was noted also that the cell proportions favoured neither enteric group infection, influenza, nor an acute coccal infection as a likely diagnosis.

Fæces Examinations.—Fæces from the same two acute cases, 1 and 3, were collected fresh and cultures made on MacConkey, nasgar, and boiled-blood agar media. No enteric group, no dysentery, no food-poisoning bacilli were grown, nor excessive numbers of streptococci, Pfeiffer's bacilli, or other unusual bowel organism. A non-lactose fermenting coliform bacillus (indol-forming) was isolated from the stool of Case 3 and tested further for its sugar reactions and serological properties; no serological relationship was found with enteric group sera, dysentery (Flexner polyvalent) or Gartner, nor with Aertrycke (Newport and Mutton strains). The sera of Cases 3 and 1 also failed to agglutinate this bacillus (dilutions 1:5 to 1:20). Microscopic examination of these two fæces of April 27th showed no pus, blood, ova, or parasites. In view of these negative findings it was thought advisable to make the somewhat elaborate bacteriological examination of the fæces just detailed.

The sole positive indication so far was the pronounced eosinophilia, and I got Dr. Williams to send me a few days later further blood films and fæces; from this further material it was possible to make an absolute diagnosis, and to ascribe the outbreak to *Trichinella spiralis*. In fæces sent from Case 3 microscopic examination showed a few adult female forms of *Trichinella spiralis*. In fæces from Case 9 many of the parasites were present, the male forms being more numerous. The examination for these worms was carried out with large, fairly thick films, pressed between photographic plates and examined with a very low-powered lens in the microscope. The earlier specimens had been viewed by hand lens and in small thin films microscopically, which fact perhaps accounts for the earlier failure to find parasites.

Thirteen blood films were examined, 300 cells being counted in each, and percentages found as shown in the following table:—

Percentage Results of Examination of Thirteen Blood Films.

Cases.	Polymorph.	Small lymph.	Large lymph.	Mononuclear.	Eosinophil.	Basophil.
1	35·0	20·0	12·0	Nil	33·0	Nil
2	49·6	5·7	10·0	1·0	33·7	,,
3	59·0	16·0	7·0	1·0	16·0	1·0
4	23·0	11·2	25·2	1·0	39·6	Nil
5	52·0	19·0	11·3	1·0	16·7	,,
6	36·4	10·0	7·2	1·0	35·4	,,
7	46·0	21·7	15·3	1·3	15·7	,,
8	45·7	7·3	17·7	1·0	28·3	,,
9	39·6	10·0	13·4	2·0	35·0	2·0
10	39·4	7·3	13·0	2·0	38·0	0·3
11	35·3	20·7	19·5	0·7	19·5	0·3
12	28·0	29·0	15·0	2·0	25·0	1·0
13	44·4	21·6	6·6	1·0	26·4	Nil

The consistent and outstanding feature of the series is the high eosinophilic count; the large lymphocytes also tend to be increased. The leucocytes in these 13 films did not appear to be very greatly increased; in the complete counts recorded earlier the slight leucocytosis is chiefly due to the great eosinophil increase.

THE NORMAL INFANT'S CHEST.

A PRELIMINARY REPORT ON THE X RAY EXAMINATION OF THE CHESTS OF HEALTHY INFANTS.

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AND

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THE necessity of obtaining a knowledge of the radiographic appearances of the healthy chest before attempting to endow shadows with pathological significance led us to begin the present investigation in the autumn of 1921. A considerable number of radiographs of healthy infants and children have now been obtained.

The present communication deals only with the radiographs of 12 infants of ages varying from 8 days to 15 weeks. These were selected as typical examples of health. They were all of the average weight at birth and without defects. They were all breast fed by healthy mothers, and were thriving well when photographed. With one exception, none of them had exhibited any symptoms of illness since birth, and, in particular, no sign of nasal catarrh nor cough had been observed. The exception (Case 10) had a slight cold in the head with a little cough for about 10 days at the age of 6 weeks, and was photographed at 10 weeks, when all symptoms had subsided. None had marked tuberculous heredity, though in a few instances there were odd cases of tuberculous infection in the previous generation. (See details table.) They were drawn from all classes of the community.

The Radiographic Conditions.

Duplitised films with two fluorescent screens were employed. The exposures were all made with the same Coolidge tube at a distance of 60 cm. in Cases 1, 3, 5, 6, 7, 8, 11; 55 cm. in Cases 2, 4, 9, 10; 50 cm. in Case 12. The exposure was 1/10 second. (V., 40,000; milliamps., 25.) The tube was placed in front of and the film behind the infant, which lay on its back. It was impossible to obtain precise orientation with such small infants or to secure each at the same phase of respiration.

Description of the Appearances Found.

There are wide variations in the size and position of the heart shadow in small infants. For example, in Case 9, aged 10 weeks, the chest shadow at the level of the seventh rib measures 104 mm.; of this space the heart shadow occupies 65 mm., while no less than 34 mm. of it extend to the right of the middle line. In Case 1, female, aged 8 days, the chest at the level of the seventh rib measures 100 mm.; the heart shadow at this level is 48 mm. in diameter, while no part of it extends beyond the vertebral shadow to the right.

In the descriptions which follow we use the term "root region" for the area which extends vertically from the fifth rib to the eighth interspace, and

Details of Cases.

Case No.	Sex.	Born.	Weight at birth.	Family history.	Age when X rayed.
			lb. oz.		
1	F	1/11/21	8 12	Parents healthy; 1 other child, healthy; no T.H.	8 days.
2	M	30/5/22	11 0	Father bronchitic; mother healthy; no T.H.; 2 other children, healthy.	11 days.
3	F	12/11/21	7 4	Parents healthy; 1 other child, premature, now healthy; no T.H.	14 days.
4	M	15/5/22	7 8	Parents healthy; 1 other child, healthy; maternal grand-aunt and possibly grandmother T.B.	16 days.
5	F	29/10/21	8 4	Parents healthy; paternal aunt T.B. hip; 1 other child, healthy.	3 weeks.
6	M	26/10/21	7 12	Parents healthy; rheumatic family history; no T.H.; 2 other children, healthy, 1 with bent legs.	3 weeks.
7	M	27/10/21	8 4	Parents healthy; paternal uncle discharged army as T.B., now well; no other children.	26 days.
8	F	13/9/21	8 0	Father healthy; mother Graves's disease, 1912, now well; white leg after both confinements; 1 other child, healthy.	8 weeks.
9	M	26/2/22	6 8	Parents healthy; no T.H.; no other children.	10 weeks.
10	F	29/1/22	Not weighed.	Father dyspeptic; mother healthy; no T.H.; 11 other children, of whom 9 healthy, 1 dead whooping-cough, 1 pneumonia.	10 weeks.
11	F	15/8/21	7 8	Parents healthy; father's family subject to bronchitis; no other children.	14 weeks.
12	M	17/7/21	9 0	Parents; 3 other children, healthy, 1 a twin, died in three days.	15 weeks.

No previous illness in any case, with the exception of Case 10. This patient had nasal catarrh, slight cough 6 to 8 weeks.
T.H. = tuberculous heredity.

horizontally about half the distance from the middle line to the chest margin in the fifth and sixth interspaces. Its outer boundary is roughly semilunar. Structurally this region includes the main bronchus and its principal divisions. The shadow pattern is distinct in this region. On the left side it is obscured by the heart shadow. In cases where the heart shadow extends far to the right, as it does in many infants, it is obscured on this side also.

The following are detailed descriptions of each case in the series:—

CASE 1.—Female, aged 8 days (see Fig. 1). Right chest: From head of fifth rib there extends downwards and outwards to the head of the sixth rib a very distinct shadow. This is separated from the vertebral shadow in the space by a clearer crescentic area. From the outer border of this shadow very faint radiations spread upwards and outwards to second interspace. Definite smoky irregular shadowing extends downwards from seventh rib, and fainter linear shadows radiate downwards and outwards as far again as

the main shadow extends from the middle line. Left chest: Shadows at root are obscured by heart shadow, but definite upward and downward linear shadows, showing indication of arborescence in places, extend to the heart margin. One, passing downwards, almost reaches the phrenic shadow about 23 mm. from middle line.

CASE 2.—Male, aged 11 days. Root shadows are obscured on both sides by heart shadow, though they can be faintly detected on the right. The heart shadow extends 25 mm. to right of middle line. Right chest, beyond heart shadow: On the right side distinct shadows pass obliquely down and out between eighth and ninth ribs, and some are visible between the ninth and tenth ribs close to spinal column. Left chest: On left side similar shadows are distinctly visible through heart shadow. In addition, marked linear shadows pass vertically upwards from level of fifth rib to the lower border of the third rib.

CASE 3.—Female, aged 14 days (see Fig. 2). Right chest: Shadow extends from head of fifth rib to middle of sixth space. Its inner margin is continuous with heart shadow, and it extends outwards two-fifths of the diameter of chest from midline to periphery. Below this a clear space extends vertically downwards to the diaphragm 5 mm. from the vertebral shadow and 13 mm. from middle line. Outside this shadows radiate obliquely towards the base, extending outwards to midway between vertebral shadow and the circumference of chest. A horizontal shadow extends outwards in fifth space almost to periphery. In the fourth interspace a definite circular shadow of about 1½ mm. diameter is situated about 4 mm. from heart shadow. Faint shadowing passing obliquely upwards and outwards is evident in the third space and extending to the second. Left chest: Definite shadowing, visible through heart shadow, is seen in the fifth space, from which definite radiations pass obliquely downwards and outwards and are visible to the ninth rib. Similar radiations, less marked, pass upwards and outwards, extending into the second space.

CASE 4.—Male, aged 16 days. Right chest: Heart shadow extends to 27 mm. from midline and 19 mm. from vertebral shadow. The root is thus obscured. Definite radiations pass downwards and outwards to the diaphragm about the middle of its extent, and in the sixth space there is a definite circular shadow situated 5 mm. from heart shadow and 32 mm. from the middle line. Shadows radiating obliquely upwards and outwards are visible in fourth and third spaces, extending faintly into second. Left chest: The root is obscured by heart shadow. Some oblique radiating shadows extending downwards and outwards are visible in sixth and seventh spaces outside heart margin. These pass faintly into the eighth space. Linear shadows are visible, 7 mm. from vertebral shadow, extending nearly directly upwards from fifth rib almost to second rib, and traces of oblique outward radiations are also visible.

CASE 5.—Female, aged 3 weeks (see Fig. 3). Right chest: The heart margin extends 8 mm. beyond vertebral shadow. In fifth interspace, immediately outside this, a trace of shadow is visible, which becomes very definite in sixth space, extending 8 mm. beyond the heart margin, and this is prolonged downwards through most of the seventh space. In centre of eighth interspace it is continuous with the heart shadow. From its lower margin faint lines of shadow radiate almost to diaphragm, extending as far outward as the middle of its surface. Left chest: The root shadows are obscured by the heart shadow, but through this radiations, passing downwards and outwards to the diaphragm in its inner third, are visible. A few faint radiating shadows passing obliquely upwards are visible in fifth, fourth, and third spaces outside heart margin.

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CASE 7.—Male, aged 26 days. Right chest: The heart shadow extends 7 mm. from the vertebral shadow. Beyond this, in the sixth space, a mass of shadow extends obliquely outwards and downwards through the seventh space. A shadow, which appears continuous with this, is also present in eighth space, extending down to diaphragmatic shadow. Beyond the outer margin of this main shadow faint radiations are visible in seventh and especially eighth spaces, the latter extending to about the line of middle of diaphragm. In third, fourth, and fifth spaces definite shadows are present extending outwards from heart margin, some showing (fifth space) horizontal, and others (fourth and third spaces) oblique upward radiation. In the fourth space there is an oval shadow, long axis oblique upwards 3½ mm., 1½ mm. in measurement. Left lung: The region of the root is obscured by the heart, but faint oblique linear shadows can be detected through the heart shadow radiating upwards and downwards, extending in the latter direction to the diaphragm at junction of its outer and middle thirds.

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CASE 9.—Male, aged 10 weeks. The heart shadow is large, pear-shaped, and more than half of it is to the right of the middle line. It extends 25 mm. to the right of vertebral shadow at the level of the sixth rib, leaving only 16 mm. of clear lung shadow beyond it. Right chest: Through it, however, in the sixth interspace, a definite mass of shadowing is seen, from which radiate downwards four definite linear shadows arranged fan-wise. The group is separated by a slightly clearer area from a second mass of shadow, close to the vertebral column, which extends downwards to the diaphragm, becoming broken up into streaks as it descends. Shadows extend outwards and downwards beyond the heart shadow to points opposite middle of diaphragm in seventh and eighth spaces. In the fifth space a horizontal band of shadowing can be distinguished through the heart shadow and extending beyond it. In third and fourth spaces oblique shadowing radiates upwards and outwards. Left chest: The heart shadow obscures the root, but beyond it a few linear shadows passing downwards and outwards are detected in seventh, eighth, and ninth spaces, almost reaching to the diaphragm. Distinct arborescent shadows are visible in third and fourth spaces, radiating outwards almost to the circumference of the chest.

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CASE 11.—Female, aged 12 weeks. Right chest: The heart shadow extends 10 mm. to right of the vertebral shadow. From its margin at the level of the sixth interspace there extend downwards numerous arborescent streaks, several of which extend to diaphragmatic shadow. Some of them in the eighth space extend outwards to about 10 mm. from the periphery of the lung. In the fifth interspace a definite patch of shadow occurs, slightly external to heart margin, and beyond this there are two patches, the outermost extending to 17 mm. from chest margin. A few streaks in third and fourth spaces radiate upwards and outwards. Left chest: The root region is obscured by the heart, but in seventh, eighth, and ninth spaces radiating shadows can be detected through the heart shadow reaching almost to diaphragm, starting above at a point about 12 mm. from vertebral shadow. Nothing can be detected through the heart shadow in upper part of chest.

CASE 12.—Male, aged 15 weeks. This negative is extremely thin. The heart shadow is mainly to the right, and nothing further can be detected on that side. On the left beyond the heart shadow some root shadowing is detected in sixth space.

Summary.

1. All cases examined show definite shadowing, not homogeneous, within an area extending from the fifth to the eighth ribs, and bounded externally by a semi-lunar line extending outwards, at the level of the sixth or seventh ribs, about three-sevenths of the total distance from the middle line to the circumference of the chest. This area contains the root of the lung. It must be borne in mind that the infant's chest is proportionally shorter than the adult's.

FIG. 1.

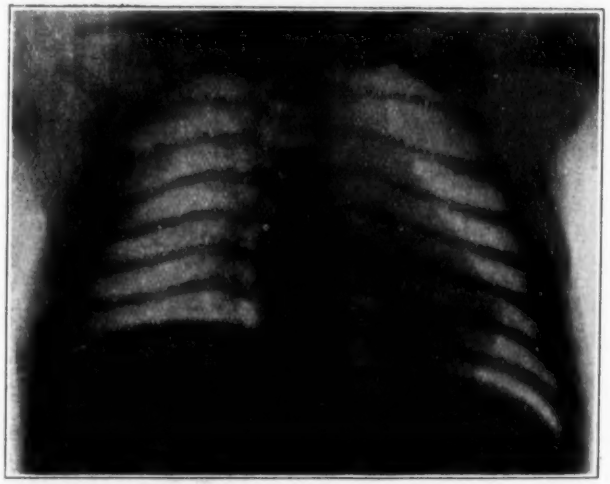
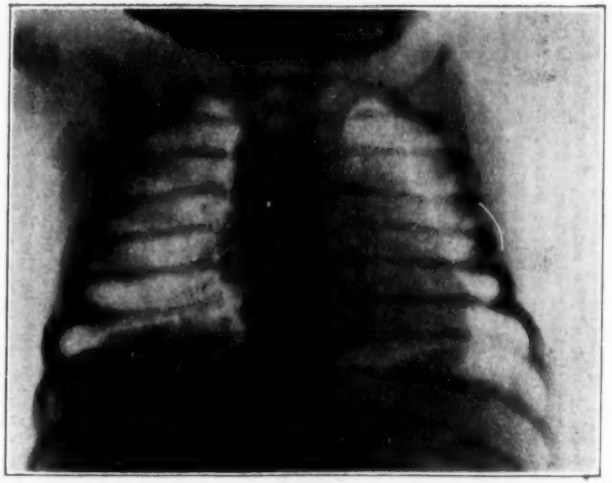


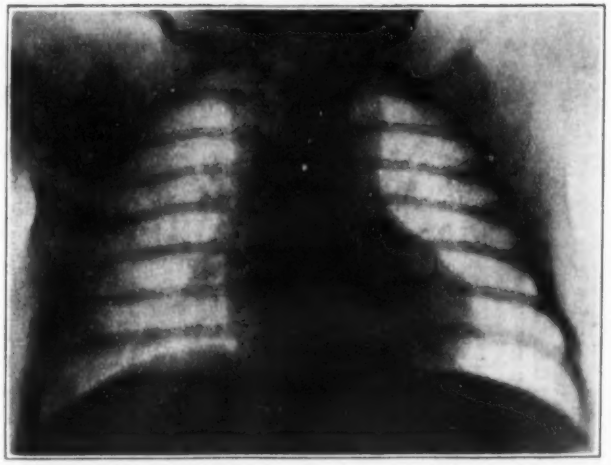
FIG. 2.



Radiographic illustrations of the chests of normal infants, all of the average weight at birth and without defects. They were all breast-fed by healthy mothers and were thriving well when photographed. With the exception of Case 10 *(Fig.* 4*) none of them had exhibited any symptoms of illness since birth, and in particular no sign of nasal catarrh or cough had been observed.*

The authors conclude that the shadows seen represent structures in the healthy lung and are not due to pathological change.

FIG. 3.



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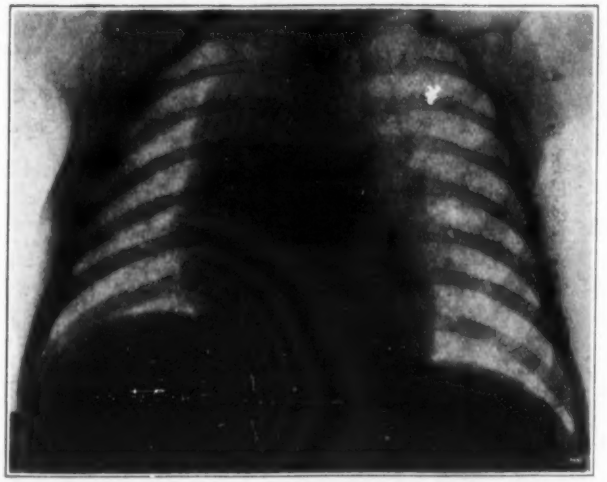

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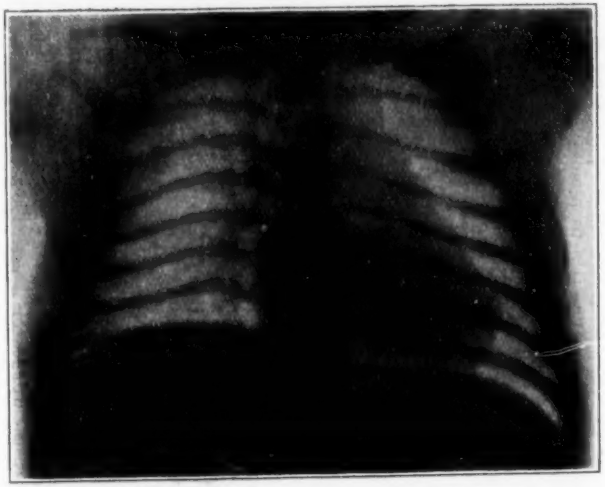

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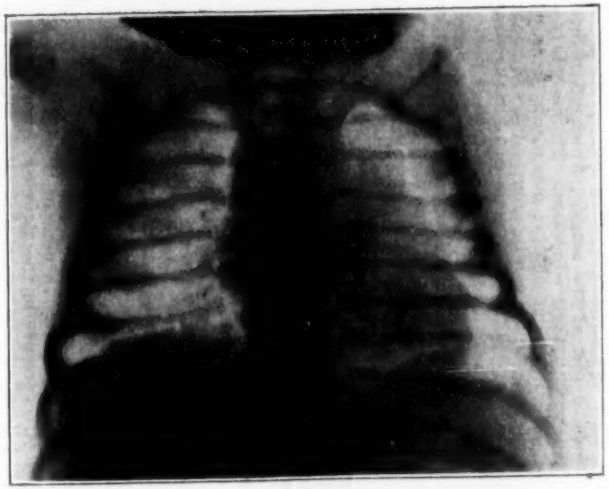

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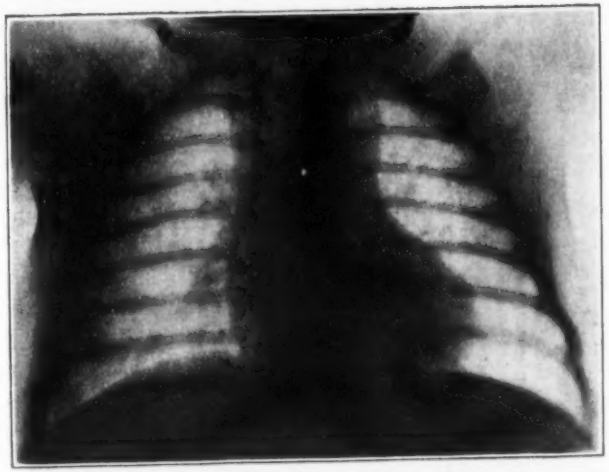

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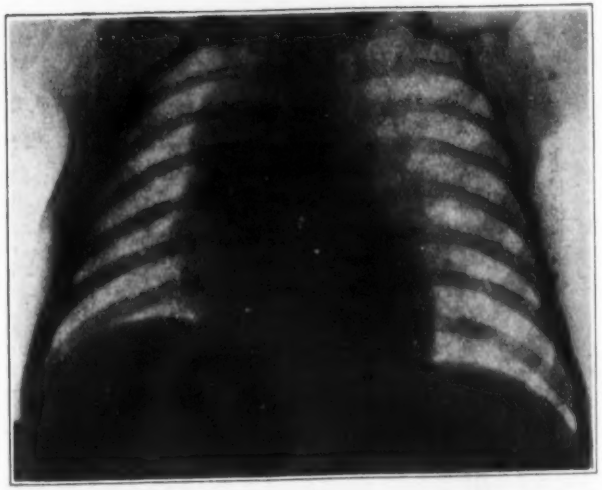

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2. All cases examined show in varying degree linear shadows, sometimes definitely arborescent, radiating from this area. Two main groups of these can readily be distinguished: (1) A basal group, mainly radiating downwards and outwards. The shadows in some instances extend to the shadow of the diaphragm. The upper shadows of this group pass horizontally, or almost horizontally, outwards, sometimes extending, in the sixth or seventh interspaces, rather more than half-way to the periphery from their origin. (2) An upper group, radiating upwards and outwards from about the level of the fifth interspace. These may in some instances be traced as high as the second rib. Between these groups there is a wedge-shaped area in which no shadows are usually visible, though occasionally (Cases Nos. 3, 7, 9) traces of horizontal streaking can be detected.

3. The position, size, and shape of the heart shadow in these healthy infants show very wide variations.

Conclusions.

1. As these results are obtained from healthy infants in whom no respiratory catarrhs have occurred, we conclude that the shadows seen represent structures in the healthy lung, and are not due to pathological change.

2. Their arborescent character noted in several cases suggests that they are thrown by the tissues of the normal bronchial tree, whether or not other structures such as blood vessels take any part in their formation.

3. It seems probable that this shadowing will become gradually more noticeable with the growth of the individual, and the appearances in these healthy infants suggest that the limits of the normal in older individuals must be much wider than is commonly supposed.

4. In several of our cases (Nos. 3, 4, 7, 10) minute dense circular shadows are observed. We avoid the use of the term nodular in the description of these because the word implies that such shadows are thrown by a nodule, which may or may not be the case. Such shadows could well be thrown by a cylindrical structure seen endwise. At any rate, in our cases their presence could not be due to a pathological deposit. If such a shadow as we have noted were increased in proportion to the size of the chest with advancing age, it would form a very noticeable feature in later pictures.

The valuable report to the National Tuberculosis Association (U.S.A.) on the X Ray and Clinical Findings in the Normal Chest of Children from 6 to 10 years, published in THE LANCET of July 8th, suggested to us that it would be of interest to communicate our results in the youngest of our series of infants now, for it is evident that in them we can exclude with practical certainty the possibility of catarrhal infection having any part in the production of the appearances. We shall follow the clinical histories of these infants and correlate them with radiographic findings at regular intervals.

We hope to publish a fuller account of our work in the reports of the Institute at a later stage.

We are indebted to Prof. D. Waterston for much valuable assistance, and to our radiographer, Mr. W. Smith, for the excellent negatives obtained in face of great difficulties. We also desire to express our indebtedness to the Medical Research Council for financial assistance towards the keeping of the records upon which this paper is based.

POST-GRADUATE TRAINING FOR PANEL DOCTORS.—On the occasion of his retirement from the post of a senior medical officer of the Scottish Board of Health to take up his duties as Professor of Preventive Medicine in the Queen's University, Kingston, Ontario, Dr. J. R. Currie was recently entertained to dinner by the Scottish Association of Insurance Committees. In thanking the chairman, Mr. J. Grieve, for making him a presentation, Dr. Currie spoke optimistically of medical benefit. He thought that a requirement that every doctor in a national insurance service should periodically undergo post-graduate training in order to keep up to date would be useful. He trusted that whatever developments took place in panel practice, the insurance committees might continue in office and in touch with medical benefits, since they carried on valuable public work.

RADIUM AS A CURATIVE AGENT FOR TUBERCULOUS GLANDS.

BY ECHLIN S. MOLYNEUX, M.R.C.S. ENG.,
HON. SURGEON TO THE WARNEFORD HOSPITAL, LEAMINGTON.

EVER since the discovery of radium its therapeutic properties have been a subject fascinating both to the medical profession and the laity. New uses are still being found for this powerful agent, and it would appear that the study of this science, far from having reached the limits of its application, is still only in its early stages. The surgical and medical treatment of tuberculous adenitis has been so unsatisfactory that in 1913–14 I thought I would see what could be done for this complaint by radium. As a result of these investigations I am convinced that the day of radical operation will soon be past, nor will it any longer be necessary to send children thus affected for prolonged periods of rest at the seaside, which often interfere seriously with their education. The unsightly scars that disfigure the necks of so many girls can also now be avoided. A cure can be promised to sufferers from tuberculous adenitis, early or advanced, if they consent to have the treatment properly carried out. The treatment is perfectly safe, provided that scrupulous attention is paid to the technique. I say this because recently a few cases have come under my notice where harm instead of good has been done by the administration of wrong doses of radium. During the period named I treated a considerable number of cases of every grade—some early cases, others with large caseating masses, and several with suppuration and secondary infection—and in every instance the swellings, and even old sinuses, simply faded away.

In no case where suppuration had not already occurred was any scar left. The skin was sometimes a little red for a few weeks from the effect of the secondary beta rays thrown off from the screen covering the radium; more will be said about this later. The redness always disappeared. The one disadvantage which may prevent this treatment becoming general is the initial cost of the radium, and the ease with which applicators are damaged. Since my demobilisation from the R.A.M.C. I have had an opportunity of examining many patients whom I treated in 1913–14. In none of them can I find any signs of recurrence in the glands I treated then, nor have I heard of any recurring in other patients whom I have not since seen. One patient lately developed tuberculosis in a different group of glands; this I have already cured. In cases of doubtful diagnosis it has been my practice to remove a small piece of affected gland and have sections cut.

Technique.

It is unnecessary to go to the length of describing all the initial experiments and the concentrations of radium used. The following is the technique I now employ: The applicators used are square flat ones. A convenient size is 2 cm. square, containing 15 mg. of radium bromide. I sometimes employ applicators about twice this size, 1 square in. containing the same amount of radium. To give a patient the same dose of radium with the larger applicator the length of exposure is double that with the smaller one.

The radium is spread out on the applicator, which is made of silver 3 mm. thick. It must be mixed with some basis, to cause the radium to adhere to the applicator evenly and to prevent loss. I used to employ a special form of varnish with this object, but varnish perishes and is easily cracked if the applicator should be dropped, with consequent loss of part of the radium; recently I have used applicators in which the radium is incorporated with a form of cement instead of varnish, and these are less liable to damage. The applicator has over it a screen of 1 mm. of silver, then a layer of lint, and finally a couple of layers of thin gutta-percha tissue tied over the whole to prevent any soiling of the screen or the radium. The gutta-percha tissue can be renewed when the applicator is used for a different patient.

The gamma rays of radium are used for this work; the screen of silver absorbs the alpha and beta rays, which if used for a sufficiently long application would cause a burn. A silver screen 1 mm. thick will absorb all the alpha rays and 99·9 per cent.—that is, practically all—of the beta rays. When gamma rays emerge from a metal surface, such as a silver screen, secondary beta rays are set up whose action on the tissues is the same as that of the primary beta rays, and it is necessary to provide for their absorption. The layers of lint and gutta-percha tissue suffice for this object.

The applicator thus protected is strapped to the patient, usually to the neck, or wherever the tuberculous glands are. Four to eight hours is a suitable time for an applicator 1 in. square, and half that time for the smaller one. It is better to give a shorter rather than a longer dose than this. I usually employ two or more applicators in order to cover all the diseased area.

Dosage.

The frequency of the dose should be twice a week to begin with, and once a week when the glands are markedly subsiding. This is an average frequency; the effect must be watched and each case judged on its merits. Patients vary greatly in their reactions to radium, some getting well with very few applications, and others requiring many. I have known a mild case, where the duration of the disease was about a year, recover after two applications. Broadly speaking patients with early tuberculous glands recover soonest, then those in whom the glands have suppurated; cases with large masses of caseating glands that have not broken down take the longest time. Treatment is continued till all signs of disease has disappeared and all that is left are some tiny fibrous nodules. If a patient, when first seen, has a cold abscess which has not burst through the skin, I always aspirate the pus with a large aspirating needle in order to relieve tension on the skin, before starting radium treatment. The skin around the perforation made by the aspirator is painted with 2 per cent. picric acid in spirit to prevent secondary infection, and a small dressing applied; this process is repeated as soon as the pus accumulates again. It is seldom necessary to aspirate more than two or three times, as by then the action of the radium will be preventing further softening, and absorption of the mass will have begun to take place.

The following appears to me to be a possible theory as to how the radium acts: In treating carcinoma one gives a dose which causes a maximum amount of destruction to the malignant cells; the dose necessary to destroy normal cells is about twice that necessary to destroy malignant growths. This, then, is a *destructive* dose of radium. In treating tuberculous glands the dose of radium employed is of exactly the opposite type; instead of a destructive dose a *stimulating* dose is given, which stimulates the tissues weakened by tuberculous infection to increased vitality, and enables the vitalised phagocytes to consume the tubercle bacilli, and—the active infection having been removed—to help absorption of the caseating material.

Illustrative Cases.

The following are a few instances which illustrate various degrees of the disease treated:—

CASE 1.—A boy, aged 4, with early T.B. glands of the left tonsillar and carotid regions. No obvious signs of softening. Five applications given at intervals of seven days. At the end of this time all signs of the disease had disappeared.

CASE 2.—A lady, aged about 30, who had had a swelling on the right side of her neck for about one year. This had been treated by iodex, tonics, change of air, and all the usual palliative measures. When I first saw her she had a mass of glands, the largest part of which was about the size of a tangerine orange; there were marked signs of caseation, and I was afraid the glands would break down and suppurate through the skin before the action of the radium could have sufficient effect. The patient's general health had also suffered considerably. I treated her twice a week and gave her ten sittings. There was an interval of a month, while she was paying a visit, in the middle of the treatment. At the end of that time her neck was perfectly normal. Fortunately the action of the radium was sufficiently established before surface suppuration occurred. When I saw her three months later she was thoroughly restored to health; the only signs I could detect of there ever having been any trouble in her neck were a few small fibrous nodules. To take no risks I gave her three more applications, though I doubt whether this was really necessary. It is rather unusual with this treatment to see a case of such severity recover after so few applications.

CASE 3.—A small girl who had previously had two operations for tuberculous glands on the left side of her neck. When first seen by me she had a fair-sized mass of glands under her right sterno-mastoid, one gland about the size of a filbert nut in the left anterior triangle, and several smaller ones in the left posterior triangle. She was treated with one application over each affected area twice a week for three weeks; then there was an interval of ten days while I was away, after which she had seven applications at intervals of from three to four days; this was followed by four more applications at weekly intervals—17 applications in all, the entire treatment lasting three months. In her case the largest mass of glands—i.e., those under the sterno-mastoid—were the first to disappear, and the gland in the left anterior triangle was the last to be cured.

CASE 4.—A woman of about 38 had had tuberculous glands for about 12 months, which were treated by various palliative measures, with no improvement. There were several glands of about the size of hazel nuts on the right side of her neck, and one the size of a pigeon's egg in the right groin. Her general health was poor, and she complained of always feeling tired. I gave her applications over each group of glands twice a week for six weeks, at the end of which time only a few tiny fibrous nodules remained, and her health was excellent.

CASE 5.—A boy, aged 4, one of a large family, nearly all the members of which had suffered from tuberculosis; his mother and one or two uncles and aunts had died of phthisis. When I first saw him he had extensive tuberculous adenitis on both sides of his neck. The glands had suppurated, and sinuses secondarily infected were present. I gave him ten applications with a single 15 mg. apparatus which was moved 4-hourly to a different group of glands, so as to cover all the areas at each sitting. At the end of this treatment all the sinuses had healed, and the masses of glands—which were many, though none of them very large—had shrunk to the size of peas. The boy had also improved much in health, and when I saw him a few months later I could hardly recognise him.

CASE 6.—A girl, aged about 22, with a large number of tuberculous glands all down the right side of her neck, some of them large enough to obscure the angle of the jaw. At one point a gland had suppurated, and there was a fluctuating swelling under the skin, which was becoming red and thinned; she had noticed the disease for many months. As a preliminary, I asked her doctor to aspirate the abscess; I aspirated it twice myself after I had commenced treatment, and this prevented the skin giving way. It took several applicators to cover the whole area. I started by giving the patient a sitting twice a week for six weeks; then she had a few applications first at weekly intervals, and finally at fortnighly intervals. The whole course lasted four months all but ten days, during which time 19 applications were given. This patient was working the whole while for a difficult examination, and was therefore unable to procure any reasonable amount of out-door recreation or sufficient rest. Nevertheless, at the end of that period all that remained was a slight temporary redness of the skin from the action of the radium. The tuberculous glands had disappeared.

It is unnecessary, while a patient is having radium treatment, to have the neck fixed, so as to limit movement, or make the patient in any way an invalid. Only violent exercise, which might lead to blows or sudden pressure on the affected glands, is prohibited; otherwise the patient is permitted to lead such a life as his general health will allow of, merely avoiding excessive strains and fatigue. This dose of radium appears to produce a general tonic effect on the system as well as a local effect on the glands—a fact I have gathered from the observations of several intelligent adults, who have independently remarked on it and have asked me whether the radium could have such an effect. Carious teeth or unhealthy tonsils and adenoids, if present, must be dealt with at the beginning of the treatment, as it would be folly to cure existing tuberculous glands and leave a future source of infection behind.

PFEIFFER'S BACILLUS AND INFLUENZA.

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AND
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(From the Walter and Eliza Hall Research Institute, Melbourne.)

DURING the epidemic of "pneumonic influenza" in 1918 we obtained *B. influenzæ* (Pfeiffer) in 98·4 per cent. of a series of cases examined post mortem at Rouen. In the course of a study of the acute infections of the respiratory tract in Southern Australia we have investigated the bacterial flora of the lungs at 390 autopsies in the Melbourne Hospital during 12 months of 1920–21. We expected that we should thus obtain a control of the incidence of *B. influenzæ* at a time when influenza was not prevalent. During the winter and spring months, however, an epidemic was prevalent in Melbourne with especial incidence in May, July, and September–October. This, we believe, would have been called influenza in the years before the "pneumonic influenza" of 1918.

Methods of Investigation.

Portions of lung obtained post mortem were taken, and cultures on unhæmolysed blood-agar plates were made both from the mucous membrane of a medium-sized bronchus, and, after searing the surface with a hot iron, from the lung substance. Direct films were made at the same time and the findings recorded. The plates were examined next day, and films and cultures made from different colonies. The presence of pneumococci, streptococci, staphylococci, Gram-negative cocci, *B. influenzæ* (Pfeiffer), *B. friedländer*, and *B. tuberculosis* was noted. For the purposes of this investigation small Gram-negative pleomorphic bacilli, growing in tiny dewdrop colonies on blood media without change of the blood, and failing to grow in subcultures on ordinary agar and media, were taken to be Pfeiffer's bacilli. No serological tests were made.

Results.

Soon after the series was commenced, with the onset of cold weather (May, 1920), a considerable rise occurred in the positive findings of *B. influenzæ* up to nearly 50 per cent. (see Table I., Pfeiffer percentage in all cases). During June the percentage fell slightly, only to rise again to over the 50 per cent. level in July. In August the percentage fell to 15·6, but the spring months, September and October, again showed a slight but definite rise. After October the percentages fell to minimal figures. How are these fluctuations of the Pfeiffer percentage reflected in the various pulmonary conditions discovered post mortem? The 390 cases are grouped thus according to the lung condition revealed post mortem:—

Pulmonary condition.		No.
1. Inflammation	Acute lobar pneumonia	46
	,, broncho-pneumonia	132
	,, purulent bronchitis	3
	Chronic tuberculosis	37
	,, bronchiectasis	4
2. Tumours	Malignant	6
	Hydatid	1
3. Circulatory disturbances	Congestion and œdema	95
	Infarcts from emboli	9
4. Normal		57
		390

TABLE I.—SHOWING PFEIFFER PERCENTAGES IN GROUPS OF NORMAL AND DISEASED LUNGS.

Month.	All cases.				Inflammations.								Tumours.				Circulatory disturbances.				Normal.			
					Acute—Lobar & broncho-pneumonia, and bronchitis.				Chronic—Tubercle and bronchiectasis.				Malignant and hydatid.				Congestion, œdema, and infarcts.							
	Total.	Pneum.	Pf.	Pf. %	Total.	Pneum.	Pf.	Pf. %	Total.	Pneum.	Pf.	Pf. %	Total.	Pneum.	Pf.	Pf. %	Total.	Pneum.	Pf.	Pf. %	Total.	Pneum.	Pf.	Pf. %
Apr., 1920	22	21	2	9·0	12	12	0	—	2	2	1	50·0	2	2	1	50·0	5	5	0	—	1	0	0	—
May ,,	51	48	25	49·0	24	23	14	58·3	8	7	5	62·5	0	—	—	—	11	10	5	45·5	8	8	1	12·5
June ,,	35	33	12	34·2	20	19	9	45·0	1	1	1	100·0	1	1	0	—	8	8	1	12·5	5	4	1	20·0
July ,,	45	44	23	51·1	30	29	14	46·8	3	3	1	33·3	0	—	—	—	6	6	5	83·0	6	6	3	50·0
Aug. ,,	32	29	5	15·6	18	18	2	11·1	6	5	1	16·7	0	—	—	—	3	2	2	66·6	5	4	0	—
Sept. ,,	30	26	8	26·6	13	11	4	30·7	3	3	1	33·3	1	0	0	—	8	7	2	25·0	5	5	1	20·0
Oct. ,,	41	26	9	21·9	19	16	5	26·3	3	3	0	—	0	—	—	—	16	7	3	18·8	3	0	1	33·3
Nov. ,,	37	23	7	18·9	13	7	2	15·3	6	5	1	16·7	3	2	1	33·3	8	6	2	25·0	7	3	1	14·3
Dec. ,,	31	22	1	3·2	11	9	1	9·1	3	2	0	—	0	—	—	—	8	4	0	—	9	7	0	—
Jan., 1921	32	25	1	3·1	11	9	1	9·1	4	3	0	—	0	—	—	—	12	10	0	—	5	3	0	—
Feb. ,,	21	14	1	4·7	6	5	0	—	0	—	—	—	0	—	—	—	12	7	0	—	3	2	1	33·3
Mar. ,,	13	9	3	23·0	4	3	1	25·0	2	2	0	—	0	—	—	—	7	4	2	28·6	0	—	—	—
Totals ..	390	320	97	24·9	181	161	53	29·3	41	36	11	26·8	7	5	2	28·6	104	76	22	21·1	57	42	9	15·8

TABLE II.—SHOWING MONTHLY VARIATION OF PFEIFFER PERCENTAGE CORRESPONDING WITH INCIDENTS OF DISEASE OF LUNG AND BRONCHUS.

Month.	Total 390.	All cases.				Total 181.	Lobar & broncho-pneumonia, and acute bronchitis.				Total 161.	Circulatory disturbances and normal lung.			
		B. influenzæ found in—					*B. influenzæ* found in—					*B. influenzæ* found in—			
		Lung.		Bronchus.			Lung.		Bronchus.			Lung.		Bronchus.	
		Total.	%	Total.	%		Total.	%	Total.	%		Total.	%	Total.	%
April, 1920 ..	22	1	4·5	2	9·1	12	0	—	0	—	6	0	—	0	—
May	51	16	31·4	25	49·0	24	9	37·5	13	54·0	19	4	21·0	7	37·0
June	35	7	20·0	10	28·5	20	6	30·0	8	40·0	13	0	—	2	15·4
July	45	13	29·0	21	46·5	30	9	30·0	13	43·4	12	3	25·0	8	66·6
August	32	3	9·4	4	12·5	18	1	5·5	2	11·1	8	1	12·5	0	—
September ..	30	4	13·3	7	23·4	13	3	23·0	4	30·8	13	1	7·7	2	15·4
October	41	3	7·3	8	19·5	19	1	5·25	5	26·3	19	2	10·5	3	16·6
November.. ..	37	1	2·7	7	19·0	13	0	—	2	15·3	15	0	—	3	20·0
December ..	31	1	3·2	1	3·2	11	1	9·1	1	9·1	17	0	—	0	—
January, 1921 ..	32	1	3·1	0	—	11	1	9·1	0	—	17	0	—	0	—
February ..	21	0	—	1	4·75	6	0	—	0	—	15	0	—	1	6·65
March	13	2	15·4	2	15·4	4	1	25·0	1	25·0	7	1	14·3	0	—

Thus the cases of definite pneumonia furnish somewhat less than half of the total (45·6 per cent.). Of the other lung conditions, those showing circulatory disturbances (congestion and œdema) without lung consolidation furnish the great majority, while tuberculosis contributes a fair quota. Table I. shows the Pfeiffer percentage in these groups of cases, and it is apparent that when the acute inflammations are set beside the other lung conditions, the fluctuations in the Pfeiffer percentage are in the same direction and of the same order. The group of "normal" lungs is too small for statistical purposes, but it is conceivable that, had a larger series of normal lungs been available, these would, just as truthfully as the diseased lungs, have reflected the general incidence of *B. influenzæ* as a human parasite. Moreover, Table II. shows that the Pfeiffer percentage, whether in lung or in medium-sized bronchus, shows corresponding monthly variations both in the cases grouped as acutely inflammatory and in the cases without inflammatory lesions (congestion, œdema, and normal lungs) with the incidence in total cases observed month by month.

The pneumococcal percentage, high at all times in lungs investigated post mortem, shows little fluctuation throughout the period.

Conclusion.

Bacteriological examination of lungs at autopsies over a period of 12 months, during which three distinct prevalences of influenzal attack were noted, yielded information which supports the view that the incidence-fluctuations of *B. influenzæ* as a lung parasite are independent of the particular pulmonary condition associated with it.

Reference.—Patterson, S. W., Little, E. M., and Williams, F. E.: Medical Research Council Report, No. 36, 1918, p. 88.

CYSTS OF THE EPIDIDYMIS.

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CYSTIC swellings in the scrotum are very common. They are usually due to the collection of fluid in the tunica vaginalis, but cysts of the epididymis are by no means rare, and these, when well developed, may produce swellings as large as an ordinary hydrocele. A study of 17 cases recently collected in the clinic of the surgical professorial unit at St. Bartholomew's Hospital and in the out-patient department of St. Peter's Hospital for Stone, has emphasised the fact that the disease not infrequently affects both epididymes simultaneously, and consideration of the available methods of treatment suggests that excision of the cysts should be more often practised. Monod and Terrillon have classified cysts arising in connexion with the epididymis in two groups: (1) Small cysts which lie above the globus major, and (2) larger cysts, in this country commonly called spermatoceles, which are more closely related to the testicle. The small cysts first mentioned are of little importance. They are not uncommon in old men, and if looked for during post-mortem examinations will usually be found on the convex surface of the globus major; they are commonly sessile and subserous, often only the size of a pin's head, and rarely larger than a pea. The pathogenesis of these cysts is uncertain. It has been suggested that they arise in vestigeal remains, and that they may result from injury or from inflammation. They give rise to no symptoms and call for no treatment.

Form and Position of Larger Cysts.

The cases which form the subject of this article all belong to the second group of larger cysts. They are of more importance clinically, since they often grow to a large size and may cause great inconvenience. Their pathology has often been discussed, but still remains uncertain. They are by no means rare, though not so common as the small cysts just described. It has been definitely stated (Monod and Terrillon) that they originate between the under surface of the globus major of the epididymis and the upper surface of the testis, and that as the cyst increases in size the epididymis itself becomes flattened out and may be recognised only with difficulty. Other writers have suggested that these cysts take origin in remains of the wolffian duct. Another theory supposes that they are due to partial dilatations of some part of the excretory ducts of the testis, and this is supported by the fact that communication between the cyst and the seminal ducts has often been demonstrated, and also that spermatozoa are always present in the fluid. They are certainly more common in the region of the globus major, and usually the remains of the body of the epididymis and globus minor can be seen on the wall of the cyst. In some cases, however, the cyst, instead of lying between the globus major and the testis, seems rather to be a cystic degeneration of the greater part of the epididymis itself, the shape of which is preserved though very little of it is left unaltered. A specimen kindly given me by Mr. F. J. F. Barrington shows a change of this kind in the testicle of a bull; the epididymis is not flattened out by a cyst lying between it and the testis, but is itself the site of development of a multilocular cyst. In the same way the cysts of the human epididymis are often multilocular, particularly when of large size, and usually there is then some communication between the various loculi so that if one is opened the others are emptied. As they become larger they always bulge into the tunica vaginalis.

Ætiology and Age Incidence.

The condition appears to be a form of retention cyst, but the causes are unknown. Previous gonorrhœal inflammation of the epididymis has often been suggested, and also injury, but it is difficult to prove either to be responsible, or, indeed, to establish any cause, from an investigation of the patient's history, for he is usually quite unable to state with accuracy for how long any enlargement has existed. Again, these cysts are probably of much commoner occurrence in later life than is generally suspected, for minor swellings pass quite unnoticed, and since there is neither functional disorder nor any pain, except perhaps an occasional aching, it is only when they are big enough to cause inconvenience that the patient presents himself for treatment.

In Cabot's "Modern Urology" it is stated that the commonest period of life during which this occurs is between 20 and 40 years. The present series, however, shows it to be chiefly a disease of advancing years, the average age being 55, though some swelling had usually been noticed for one or two years previously. This agrees with the opinion of most writers. The youngest subject, under the care of Mr. Grey Turner—to whom I am grateful for permission to publish this case—was aged 41, and had noticed the swelling for about a year. The condition has been described in patients as young as 25 years. Most of the patients were married, and were fathers of families now grown up. In only one patient was there any definite history of injury, which had occurred five months previously, and he was fairly sure that the swelling was the direct result of it. Two patients had acquired gonorrhœa many years before, but did not remember having had epididymitis at the time. In one case there was a history of syphilis 30 years previously.

When examination is made of the frequency with which either testicle is affected, it is interesting to find that in 5 of the 17 cases the cystic enlargement was on the right side, and in 4 it was on the left, but that in the remaining 8 both epididymes were affected, one usually being larger than the other. The common occurrence of cystic degeneration of both epididymes is not generally realised. The distension was usually not very great, the largest amount of fluid obtained being 13 oz., which was withdrawn

by tapping the bigger of bilateral cysts. In other instances about 5 oz. were present. A case has been described in which on one occasion 49 oz. of fluid were withdrawn from the right side and 58 oz. from the left. The fluid, whenever it was examined microscopically, contained spermatozoa, usually in large numbers, living, actively motile, and well formed; these are commonly numerous enough to give it the characteristic opalescence. An examination of these patients threw no light upon the cause of the condition. The vasa deferentia appeared normal; the seminal vesicles felt normal when examined per rectum, and no urethral obstruction was found. Posterior urethroscopy in four patients gave no certain evidence of obstruction to the orifices of the common ejaculatory ducts, though in two the region of the verumontanum appeared somewhat œdematous.

Diagnosis.

The diagnosis of these swellings is not difficult, yet they are often confused with hydroceles of the tunica vaginalis. Both are fluid swellings within the scrotum; in both fluctuation is present, but these cysts of the epididymis form a much softer swelling than the ordinarily tense hydrocele. Again, individual loculi can often be felt as rounded prominences which give the swelling a surface irregular and different from the smooth outline of a hydrocele. Another means by which they can usually be distinguished is to determine the position of the testis; this will be found to lie in front, and, when the entire epididymis is affected, to be surrounded above, behind, and below by a cystic swelling. When there are cysts only of the globus major the testis lies in the bottom of the scrotum, but it is never displaced backwards into the position which it occupies when a hydrocele of the tunica vaginalis is present. It may be mentioned here that a small hydrocele is sometimes found associated with cystic degeneration of the epididymis; this was found six times in the present series. A further aid to diagnosis is transillumination, which will often be of use in identifying the position of the testis; as these swellings often consist of collections of cysts, they are generally more opaque than the ordinary unilocular hydrocele, though not so opaque as to provide a certain means of distinction between the two conditions, as some writers have implied. Tapping will settle the diagnosis, since it will yield a cloudy, colourless fluid, usually containing spermatozoa in numbers large enough to give the characteristic shimmer; but even if this is not so, they can always be found if the fluid is centrifugalised.

Treatment.

When the patients come for treatment it will often be found that tapping has already been employed. Sometimes this is all that is necessary, and if it is performed two or three times a year the patient may be quite satisfied. But it must be remembered that tapping will not cure the condition, as the cysts always refill themselves. Sometimes they do so very rapidly, and then it is usually preferable to advise removal of the swelling, which can be approached through any of the ordinary incisions. The cyst of one or both sides, or perhaps the whole epididymis, is excised, and this can easily be done without any damage to the testis or its blood-supply. In the present series either epididymectomy, or removal of a cyst on one side, was performed five times, and it is important to notice that no loss of sexual desire or of power of ejaculation has resulted, nor has atrophy of the testis occurred. In one of the two patients in whom bilateral epididymectomy was performed the result was equally satisfactory; the other has not been traced.

Summary.

1. Cystic degeneration of the epididymis is common; its pathology is uncertain. 2. It is a disease of maturity. 3. Both sides are often affected. 4. Excision is indicated when tapping has failed to give relief for more than inconveniently short periods.

(*Continued at foot of next column.*)

SMALL-POX AND "AMAAS" IN SOUTH AFRICA.

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IN view of the reported occurrence of outbreaks of "amaas" or "alastrim" in Great Britain, and the controversy which has arisen as to its precise nature and its relation to small-pox and vaccinia, a brief statement of experience of this disease in South Africa, and opinions based thereon, may be useful. The question is not merely an abstract scientific one; it is of great importance in practical public health administration. Here, in South Africa, the belief amongst some medical men and a large section of the public that the disease is not small-pox, and that it is of permanently mild type and comparatively unimportant, has repeatedly led to unfortunate results. The medical men who hold this view are mostly (though not exclusively[1]) either senior practitioners, whose experience goes back to the time when small-pox in this country was a very prevalent and very fatal disease, or younger medical men whose knowledge of small-pox is based mainly on the smaller text-books and observation of a few cases.

The controversy is in reality very old. Sydenham refers to extensive outbreaks with very low mortality, considered by the laity and some medical authorities to be essentially different from variola, and described as "horn-pox," "stone-pox," or "glass-pox." Nothnagel states that "in the pre-vaccination period light cases (of the character of 'varioloid') were associated with severe ones at all times and in all epidemics, and, further, there were also outbreaks, though more rarely than at present, in which milder cases were more prevalent than the severer ones." Jenner notes an epidemic in Gloucestershire with no deaths. Sir George Turner, in his report mentioned later, records having seen an outbreak in England with a mortality of only 3 per cent. and refers to another, in Sutherland in 1884, in which there were 100 consecutive cases without a death. In the Sheffield outbreak of 1887–8 there were 4995 cases in vaccinated persons with 243 deaths, a case mortality of 4·7 per cent., and 1028 unvaccinated cases with 320 deaths, a case mortality of 31·1 per cent., the rate for all cases being 9·45 per cent. In Glasgow, in 1901–2, there were 1010 cases, with 233 deaths, a case mortality of 23·0 per cent.

Early Epidemics in South Africa.

Small-pox was first introduced to South Africa in 1713—by a vessel on which cases had occurred on the voyage from India, but which had recovered before reaching Table Bay. Clothing from this vessel was brought ashore to be washed at the Dutch East India Company's slave lodge. The disease broke out among the slaves, and of 570 attacked 200 died. The disease spread rapidly to the European and native population, and a widespread and very fatal epidemic followed. The death-rate was especially high among the Hottentots, some of whom fled to the mountains and far inland, carrying the infection with them. So great became the terror of the natives that they killed and burned some of these fugitives. It is recorded that the entire inhabitants of many kraals died and the very names of tribes for a great distance inland disappeared.

A widespread and very fatal outbreak occurred in 1755, the infection being introduced by vessels from Ceylon. It is recorded that in Table Valley alone 963 Europeans and 1109 natives died of it. Theal,

[1] The chief exponent of the "amaas, a separate and distinct disease" theory, is Dr. W. E. de Korte. See his paper Amaas or Kafir Milk-Pox, THE LANCET, 1904, p. 1273.

(*Continued from preceding column.*)

References.—Monod, Ch., and Terrillon, O.: Maladies du testicule. 1889. Jacobson, W. H.: Diseases of the Male Organs of Generation, 1893. Thomson Walker, J. W.: Genito-Urinary Surgery, 1914. Cabot, H.: Modern Urology, 1918.

in his "History of South Africa," referring to this epidemic, states that the disease assumed various forms; amongst some of the distant Hottentot tribes it differed in appearance so much from what was held to be true small-pox that the Europeans called it "gall sickness." In 1767 the infection was brought to Cape Town by a Danish vessel from Europe; some 1900 cases occurred, with 179 European and 396 native deaths.

Further severe and extensive outbreaks occurred in 1807, 1812, 1839, 1858, 1881, and 1882. Even in these early times the type of the disease was not always severe. An outbreak is recorded in 1812 amongst the slaves on a Portuguese ship, who were landed and quarantined at Cape Town; 50 cases in all occurred, but, in the words of the Governor of the Colony, "the disease was of a very lenient nature and no mortality took place."

Compulsory Vaccination.

A great deal of vaccination had been done in connexion with the later of these outbreaks, and in 1883 a Public Health Act was passed by the Cape Parliament making vaccination compulsory. Under it a general system of public vaccination was organised throughout the Cape Colony and native territories, and this has been continued since. It has, however, never been possible completely to enforce the measure; the efficiency of enforcement may be estimated at about 60 to 70 per cent. The course of events and experience in Natal, the Free State, and Transvaal has been somewhat similar. From 1882 onwards compulsory vaccination has been fairly effectively enforced in Natal; in the Free State and Transvaal an organised system of routine public vaccination is of more recent development. This measure, and the rigorous and wide enforcement of special vaccination in connexion with actual outbreaks, have sufficed to prevent any very serious and widespread epidemic of the disease during the past 20 or 30 years, though the country has never been without a number of small outbreaks and prevalences, especially during the colder months of the year; the disease, since the earlier fulminant outbreaks, has always tended to tail off and subside during the hot summer season. In 1917 a considerable epidemic of mild type occurred in British Bechuanaland, and in the northern and north-western districts of the Union.

Recent Epidemics.

Most of the outbreaks during the past 30 years have been of comparatively mild type, and although the skin symptoms are often well-marked, and in general conformity with the classical descriptions of small-pox, the constitutional symptoms are usually mild and the death-rate is comparatively low. To this type the term "amaas" has come to be very generally applied, or sometimes the term "kafir-pox," as the great majority of the cases have usually been in natives. The contention that the disease is not infectious, or at any rate less infectious, to Europeans, is not in accordance with the facts. It is highly infectious to unvaccinated Europeans; the larger numbers of cases in natives are only to be expected in view of the much larger native population, and the greater difficulties in connexion with the enforcement of vaccination and the prompt notification or discovery and effective control of outbreaks amongst them. The Bantu tribes know the old, virulent, disfiguring and highly fatal form of the disease as "ngqakaga"—meaning "face that is spoilt"; chicken-pox they term "umninawe-we-ngqakaga" ("younger brother to small-pox") and the usual mild form of small-pox they speak of as "hashalala" (roughness of the skin), the latter word being sometimes also applied to measles. The use of the term "amaas" seems to have arisen among the Dutch-speaking population; it is rarely if ever used by natives speaking their own language. Its origin is doubtful; it may be derived from the Kafir word "amasi" meaning "fermenting milk" (milk-pox), but is more probably a corruption of the Dutch word "masels" or "mazelen" (measles).

In 1895 an outbreak of amaas occurred in Graaff-Reinet, and was carefully investigated by my predecessor and former chief, the late Sir George (then Dr.) Turner, medical officer of health for the Cape Colony His report on this outbreak, in which he also deals with the question of diagnosis and the precise nature of the disease, with a series of illustrative photographs and temperature charts, published in extenso in the annual health report of the Cape Colony for 1895 is a contribution of the first importance to the literature of this question. In it, after detailing his own observations and investigations of a number of cases, he gives the following summary of his views and conclusions:—

"Here we have to deal with a disease which is:—

(*a*) Infectious.

(*b*) To which vaccinated people are not so susceptible as the unvaccinated, and from which they do not suffer so severely.

(*c*) After suffering from the disease the patient is not susceptible to vaccination.

(*d*) In those cases in which we were able to ascertain the incubation period it was shown to be more than 10 and not more than 13 days.

(*e*) The prodromata are headache, pain in the limbs, and especially in the back, vomiting, and fever. They last from 48 to 72 hours.

(*f*) The fever and other symptoms abate when the eruption appears.

(*g*) The eruption is generally most abundant on the face, and appears there slightly sooner than elsewhere. It was seen on the palms of the hands and soles of the feet in all the cases inspected by us. It also appears in the pharynx.

(*h*) The eruption is first papular, then vesicular and multilocular, and lastly pustular or aborts.

(*i*) When the vesicles maturate the fever lights up again, and the patient complains often of tightness of the skin. The movements of fingers are impeded, and sometimes there is pain in walking.

(*k*) In the cases we saw in which the eruption on the face was profuse, the eyelids were so swollen that the patient had a difficulty in opening them.

(*l*) The eyes were affected in four instances, in two the eyes were probably irretrievably lost.

(*m*) One man afterwards suffered from abscesses.

(*n*) When the scabs fell they either left pigmented marks or pitted the skin.

Now, any disease which presents all these characteristics can be nothing but discrete small-pox."

There follows, in his report, an analysis and criticism of the grounds on which this disease had been held by some to be *sui generis*, and different from small-pox.

Dr. A. J. Gregory, Sir George Turner's successor in the post of medical officer of health, Cape Colony, held similar views.[2] To the best of my knowledge, every Government health officer in South Africa during the past 25 or 30 years has come to the same conclusions.

Conflicting Diagnoses.

My European experience of small-pox includes several considerable outbreaks in Scotland and Ireland, 1895 to 1899, and an outbreak in Cambridge, England, in 1906. In South Africa, as a health officer of the Government since 1899, it has fallen to my lot during that period to investigate 50 or 60 different outbreaks of small-pox and cognate diseases, and in a considerable number of these it has been necessary to arrive at decisions between conflicting opinions of local medical men as to the precise nature of the disease. One notable instance of this occurred in Kimberley in 1905, where an outbreak comprising 153 cases occurred, and where, at the request of the Board of Health, all the local medical men had furnished their views. They numbered 13; nine of them, including the District Surgeon, considered the disease to be small-pox; the other four (including the Board's medical officer of health) regarded it as amaas, or, at any rate, not small-pox. (This was a notable instance of history repeating itself; the story of the Kimberley outbreak of 1882, diagnosed "epidemic pemphigus" by the late Sir (then Dr.) L. S. Jameson, is well known.) Reports of a number of these outbreaks, and remarks as to the nature of

[2] Annual Health Report for Cape Colony, 1906.

the disease, will be found in several of the annual health reports, Cape Colony, 1903 to 1909. I have also seen a considerable number of cases of small-pox or similar disease, with infection from other countries, on board or landed from vessels at South African ports.

Putting aside outbreaks or cases which proved to be chicken-pox, generalised vaccinia, syphilis, impetigo, pustular eczema or other skin disease, or, in one case, cutaneous glanders, where suspicion of small-pox had arisen, my observations and experience confirm the conclusions arrived at by Sir George Turner in 1895, and I have never seen an outbreak or case of this nature which I was convinced was not one of the diseases just mentioned and yet not small-pox.

Characteristics of Amaas.

The disease is very infectious, mainly by contact and "fomites," and in the same ways as small-pox. Its incubation period, the prodromal and initial symptoms, the initial fever, the subsidence of fever at or about the time of appearance of the eruption, the occurrence of secondary fever in severe cases, the time and order of appearance, distribution, and character of the eruption and its subsequent course, are identical with or substantially the same as in small-pox. Prodromal rashes, which are rare in small-pox everywhere and are almost invariably faint and evanescent, are very rarely seen. With dark native skins this is to be expected; I have, however, seen two or three such rashes (scarlatiniform) in white patients. The distribution of the rash, including the tendency to specially affect parts or points exposed to friction or irritation, and the order in which it appears in different parts of the body, are identical with small-pox in every detail. It has been urged that the rash takes longer to come out than in true small-pox. My observations show that in about 75 per cent. of cases the rash appears before the end of the third day of illness; in about 20 per cent. on the fourth or fifth day; in 5 per cent. on the sixth or seventh day. The spots come out first on the face, head, and neck, then on the arms and trunk, then on the legs; thus there may be vesicles or pustules on the face whilst the rash on the legs is still in the papular or vesicular stage. After the first "crop" a few additional spots may come out on the regions first affected, but they are never numerous or comparable with the successive and distinct "crops" of chicken-pox. All this, though differing slightly from the delightfully simple and clean-cut descriptions of small-pox in the smaller text-books, is quite in accord with the descriptions given in the larger and more detailed works of Ricketts and Byles, and other recognised authorities. The average size of the lesions, their commencement in the deeper layers of the skin, their tense, "shotty" feeling, their basal infiltration, and their multilocularity, are similarly in accord. As a rule their tops are slightly flattened; sometimes they are slightly cupped or umbilicated. The idea that even in severe cases of small-pox in Europe all the spots are umbilicated is quite erroneous. I am inclined to think, however, that umbilication is not so noticeable a feature of the small-pox eruptions of natives as of Europeans, owing perhaps to the different texture of the native skin. I have, however, seen many European cases of so-called amaas in which umbilication of many of the spots was quite marked. The inflammation around the spots and the facial swelling and œdema are quite as marked as in cases with small-pox eruptions of similar severity in Europe; in severe cases the eyes are often almost completely or even completely closed by it. In a considerable proportion of mild discrete cases the spots abort and dry up before becoming pustular; the same thing happens in mild cases of small-pox in Europe, though perhaps the proportion is not as a rule so large.

It is frequently stated that in amaas there is no secondary fever. This is quite incorrect; in every case where I have looked for and expected to find it—namely where there was moderately severe or severe pustulation and suppuration—I have found it; usually 100° to 102° F., but sometimes higher. The sequelæ and complications, including eye, ear, throat, and septic affections, correspond in all respects with small-pox in Europe.

Another assertion made by advocates of the "separate and distinct disease" theory is that the eruption of amaas is never followed by "pitting." All European authorities agree that "pitting" is rare in discrete small-pox, and this applies to the older as well as the more recent outbreaks. Sydenham says: "It is very rarely the case that distinct (i.e., discrete) small-pox leaves its mark." This is equally true in ordinary mild cases of so-called amaas; as a rule the disease leaves only pigmented spots, which slowly fade and disappear in the course of a few weeks or months. But in severe confluent cases, with much suppuration, scar tissue formation and subsequent "pitting" proceed precisely as in severe cases in Europe; of this I have a number of illustrative photographs.

Vaccination.

In its relation to vaccination the disease is substantially identical with small-pox. In patients successfully vaccinated within the five years or so preceding attack the eruption is as a rule less profuse; the spots are smaller and more superficial, their evolution is quicker, they usually form scabs and dry up with little pus formation, and the constitutional symptoms are milder. As regards the so-called "vaccination test," it must be remembered that, despite definite statements to the contrary made (or copied) by some authors without adequate verification, the reciprocal protectivity of small-pox and vaccinia is neither invariable nor absolute; unfortunately, few things in medicine are. I have seen several cases of more or less successful vaccination in persons convalescent, or recently recovered from small-pox of undoubtedly genuine type. The "successes" were only a small percentage of the number vaccinated, and in none were the lesions typical or well-developed; usually there was little or no reaction up to the fifth or sixth day, and in most it consisted, when fully developed, of a raised, flat, reddened "button" of granulation tissue, described by Hervieux as a "vaccinoid"; in two or three cases there was slight vesicle-formation, but vaccination of rabbits with the contents produced no reaction. On the other hand, I have seen a number of cases where small-pox had developed within a short period—two or three weeks to a few months—of undoubtedly successful vaccination, though such cases, in my experience, have always been mild.

I have not seen a second attack of small-pox, amaas, or any similar disease in the same individual. The degree and duration of immunity to vaccinia produced by successful vaccination varies considerably in different individuals. Persons who can be successfully vaccinated every year or two are not very uncommon. I know a medical man who occasionally assisted in the preparation of vaccine lymph and found that he could be successfully vaccinated—accidentally or otherwise—once a month or so.

It follows from the foregoing that the "vaccination test" for small-pox, whilst very useful in a general way and "in bulk," is not quite reliable when applied to an individual case, or even to a few cases. A small percentage of persons recently and successfully vaccinated remain susceptible to small-pox or amaas, and if exposed to infection may develop the disease in a mild form. A small percentage of persons convalescent, or recently recovered from small-pox or amaas, may be vaccinated with at least a measure of success, though the results are rarely if ever typical.

Broadly and generally speaking, recent successful vaccination protects against small-pox or amaas. Our invariable experience of outbreaks is that the incidence is chiefly or almost entirely in the unvaccinated and in those who have not been successfully vaccinated within the five or six years preceding attack; with very few exceptions the deaths occur in the same classes. Vaccination or re-vaccination

of all "contacts" and the population around a focus of infection, with, of course, the segregation or detention of the sick and prevention of removal of infected clothing, &c., can always be relied on to prevent spread, and where vaccination is done within a few days of infection and is successful the attack is aborted or modified. But where, as a test or experiment, a number of convalescents or recently recovered cases are vaccinated a few may give a modified reaction, precisely as in European strains of small-pox infection. All this goes to confirm the essential identity of amaas and small-pox. We have hitherto, in South Africa, used only European strains of vaccine lymph. It seems possible that the reciprocal protectivity of such lymph and our South African strains of small-pox is perhaps rather less than it would be for European strains, and that it might be greater with a strain of vaccine more directly related to our local strains of small-pox. I hope to arrange for an investigation of this possibility by the Union Public Health Department.

As regards mortality rates Table I. is instructive. All cases previously successfully vaccinated, no matter how long before attack, are therein classed as "pre-vaccinated"; a large proportion of these had been vaccinated many years before attack.

It will be seen from Table I. that the case mortality has varied within wide limits from year to year, and was unusually high in 1898. The variation was more marked in individual outbreaks, and instances have occurred where a mild strain of infection, causing disease of the type commonly known as amaas, has become virulent, the later cases being severe and in all respects typical small-pox, with a high mortality rate. In 1898 a small outbreak occurred at Port Elizabeth, following infection introduced from Graaff-Reinet, where there was an outbreak of the ordinary mild type. Table II. gives the figures for this outbreak.

TABLE II.

Cases.				Deaths.				Case mortality per cent.				
Unvacc.		Prevacc.		Unvacc.		Prevacc.		Unvacc.		Prevacc.		Total.
E	C	E	C	E	C	E	C	E	C	E	C	
10	42	6	38	1	27	1	—	10	64·3	16·6	—	30·2

Particulars of a similar instance will be found in the report of the health officer for Natal (Dr. Ernest Hill) for 1904. Early in that year cases of the disease "of remarkably mild type" occurred in the Ixopo district, the disease subsequently spreading to Estcourt, where, "owing to the mildness of its manifestations, it escaped earlier detection under the assumed garb of chicken-pox." The infection later became disseminated throughout the greater part of Natal, and took on very virulent characters. The final statistics of the epidemic are given in Table III.

TABLE III.

—	Prevacc.	Unvacc.	Vacc. uncertain.	Total.
Cases	496	566	176	1238
Deaths ..	77	251	33	361
Case mortality per cent.	15·52	44·34	18·75	29·16

Two instances of a similar kind have occurred under my own observation. In 1900 I was research bacteriologist to the Robben Island Leper Asylum. There was at the time some sporadic prevalence of mild small-pox or amaas in the southern suburbs of Cape Town and the Malmesbury district adjoining, and people from these areas daily came to the island to visit friends in the asylum. The first two cases were very mild, but a large percentage of the subsequent ones were typical small-pox of disfiguring and dangerous type. Twenty-one cases in all occurred, with eight deaths, a case mortality of 38 per cent. The patients, all coloured female adults, were lepers, but most of them were strong and in good general health. Again, in 1903, whilst I was at Port Elizabeth dealing with an outbreak of plague, cases of small-pox of the usual mild type occurred amongst natives in the Sunday's River Valley south of Graaff-Reinet. The disease spread down the valley and eventually to the town of Port Elizabeth. The earlier cases there were very mild, but later the type became much more severe. The final figures for the outbreak are given in Table IV.

TABLE I.—SMALL-POX IN THE CAPE COLONY, 1896 TO 1908.

Year.	Unvaccinated						Pre-vaccinated.						Totals.					
	Cases.		Deaths.		Mortality per cent.		Cases.		Deaths.		Mortality per cent.		Cases.		Deaths.		Mortality per cent.	
	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C
1896	107	2563	3	107	2·80	4·18	44	635	2	6	4·55	0·95	151	3198	5	113	3·31	3·53
1897	26	422	4	14	15·39	3·32	6	91	—	—	—	—	32	513	4	14	12·50	2·73
1898	12	482	1	73	8·33	15·15	17	188	2	6	11·77	3·19	29	670	3	79	10·34	11·79
1899	2	636	—	31	—	4·87	10	151	1	—	10·00	—	12	787	1	31	8·33	3·94
1900	13	1540	2	79	15·38	5·13	10	648	—	5	—	0·77	23	2188	2	84	8·69	3·84
1901	20	532	—	54	—	10·15	10	306	—	10	—	3·27	30	838	—	64	—	7·63
1902	49	2233	2	134	4·08	6·0	42	847	1	22	2·38	2·59	91	3080	3	156	3·29	5·07
1903	102	1445	2	63	1·96	4·36	68	491	2	11	2·94	2·24	170	1936	4	74	2·35	3·82
1904	36	391	1	9	2·78	2·30	29	99	2	—	6·83	—	65	490	3	9	4·62	1·84
1905	80	599	—	26	—	4·34	45	234	1	7	2·22	2·91	125	833	1	33	0·80	3·96
1906	33	613	1	25	3·03	4·07	31	328	—	4	—	1·22	64	941	1	29	1·56	3·08
1907	36	778	—	59	—	7·58	13	273	—	1	—	0·36	49	1051	—	69	—	6·57
1908	47	537	—	22	—	4·09	26	289	—	8	—	2·77	73	826	—	30	—	3·63
Totals	563	12,771	16	696	2·84	5·45	351	4580	11	80	3·13	1·75	914	17,351	27	785	2·95	4·52

E = European. C = Colonial.

TABLE IV.

Cases.			State as to vaccination of cases and deaths.						Case mortality per cent.
E	C.	Total.	Prevacc.		Unvacc.		Uncertain as to vacc.		
			Cs.	Ds.	Cs.	Ds.	Cs.	Ds.	
19	203	222	87	4	121	8	14	5	7·65

Cs. = Cases. Ds. = Deaths.

The complications and sequelæ in this outbreak included corneal ulcerations, boils, abscesses (especially of the ischio-rectal region and buttock), and localised inflammation, followed by sloughing and ulcer-formation, of the cellular tissue of the leg.

Climatic and Racial Factors Affecting Small-pox.

I have long since come to the view that small-pox, like all other acute infections, is a disease of varying type and with different strains of infection; the virulence of these strains, and consequently the type of the disease, being influenced by climate, temperature, racial susceptibility, previous prevalence of the disease in the population in the present or recently preceding generations, rapid "passage" of the infection from case to case, and by other and as yet

unknown factors. Small-pox is, and always has been, essentially a disease of temperate and sub-tropical climates, and has rarely flourished to a similar extent in hot countries; also, in temperate and sub-tropical climates it tends to subside during the hot season, so that climate and temperature are important factors affecting its virulence. It is interesting to note that vaccinia infection in calf lymph is very sensitive, in the moist state, to high temperatures and hot weather (in glycerinated lymph this is doubtless due in part to the greater germicidal action of glycerine at higher temperatures); in the dry state it retains activity well, even in hot climates.

Varioloid, Alastrim, and Amaas Apparently Identical.

Varioloid in Australia, alastrim in Egypt, the Soudan and West Indies, and similar mild forms in Brazil and other countries, seem to be substantially identical with our South African so-called amaas, which, I consider, is merely a form of small-pox, ordinarily mild and with low mortality, but capable, under largely unknown conditions, of taking on virulent characters and causing the severe, disfiguring, and highly fatal type of "classical" small-pox. It is sometimes helpful to look at these diseases from the standpoint of the infection rather than of the victims whom it seizes and utilises as culture media. Where such infections have to struggle for existence under adverse conditions, or in the presence of inhibitory or antagonistic substances, they are apt to be stunted and weak; on the other hand, favourable conditions, a receptive and fertile soil and plenty of it, produce a rank, strong, and luxuriant growth. With them a "generation"—the time required for fission (or, as the case may be, sporulation) development to maturity and up to the commencement of reproduction again—is a matter of minutes or hours, so that response and adaptation to new or modified conditions is very quick; laboratory experience furnishes many examples of this. The very fact of the survival of an acute and highly fatal infectious disease connotes the occurrence of milder forms; it could not survive if it were ever a consuming flame, never a smouldering fire.

Analogies: Scarlet Fever and Typhus.

The analogy of scarlet fever may be cited. At Cape Town, with a climate slightly warmer than England, it is, on the whole, of milder type than in Europe, and as we proceed eastward to Port Elizabeth, East London, and Durban, with increasingly warmer climates, it becomes progressively milder and with less tendency to spread; at Delagoa Bay, which is almost tropical, scarlet fever, apart from imported cases, is almost unknown. Up to recent years we looked upon typhus as a disease of very uniform, severe, and clean-cut type; now we know, largely as a result of laboratory and experimental research, that the exceedingly mild and very rarely fatal Brill's disease of the Western littoral of the United States, the mild Rio Grande or mountain fever of Mexico, and the mild and generally eruptionless "black fever" of South Africa are essentially identical with "classical" typhus, and that (though this has not yet been definitely established in respect of black fever) all are reciprocally protective.

We are, I believe, passing through the same phases with small-pox, amaas, alastrim, and vaccinia. It is regrettable that little experimental research work has so far been done in this domain. Leake and Force (U.S.A. Public Health Reports, 1921) have shown that monkeys and rabbits inoculated with alastrim are immune or almost immune from vaccinia; it is to be hoped that further experiments, covering all forms of this disease, will ere long be carried out.

Terminology.

Meanwhile I would deprecate the loose or unnecessary use of synonyms and fancy names, and the invention of new names (the term "para-smallpox" has recently been suggested) to describe mild or variant forms of small-pox. This practice is apt to cause doubt and confusion in the minds of medical men and the general public which may lead to slackness, neglect, and delays when outbreaks occur, and to interfere with the enforcement of vaccination. As already mentioned, difficulties of this kind have repeatedly arisen in South Africa. We have endeavoured in the Union Public Health Act of 1919 to obviate them in future by defining small-pox as "including the form known as amaas or kafir-pox and any disease resembling small-pox, except chicken-pox."

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON TWO CASES OF GALL-STONE ILEUS.

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OF these two patients the first had a large stone removed from the ileum, relieving the obstruction. Four days later she again developed symptoms of intestinal obstruction, thought to be due to peritonitis, and no further operation was performed. Necropsy revealed two further stones impacted in the ileum. In the second patient a stone was removed from the lower end of the ileum; examination of the gall-bladder showed that it was adherent to the duodenum, and still contained calculi. To prevent the possibility of a further obstruction the gall-bladder and duodenum were separated. The fistula in the duodenum was closed, and the stones removed from the gall-bladder.

CASE 1.—The patient was a pale, thin woman, aged 65. For some time she had not been feeling well, and had had some difficulty with the bowels. Seven days before admission she was seized with violent pain, followed by symptoms of intestinal obstruction. On admission the symptoms were very indefinite, and largely cleared up after an enema. Two days later the vomiting returned, and a small hard mass could be detected in the right iliac fossa.

Operation.—Laparotomy showed a faceted gall-stone, as large as a golf ball, impacted in the lower end of the ileum. This was removed, with relief of the symptoms. Four days after the operation abdominal pain returned, followed by vomiting and some abdominal distension. It was supposed that leakage had occurred at the suture line, and that the symptoms were due to peritonitis. No further operation was performed. The patient died a few days later.

Necropsy.—General peritonitis was found, due to a small perforation of the ileum above a stone impacted about five feet above the ileo-cæcal valve, and about two feet above the incision for the removal of the first stone. Some distance above this stone a second was found impacted, with a similar perforation. There was a fistula between the gall-bladder and duodenum, but the former had completely discharged its contents, three stones in all.

CASE 2.—A woman, aged 65, was admitted with abdominal pain of four days' duration. The onset was sudden and was accompanied by vomiting and followed by colicky pains. The pain was referred to the umbilicus, round to the back and into the right shoulder. Since the onset vomiting had been persistent, and constipation absolute. A history was obtained of biliary colic over some 18 years, at times accompanied by jaundice. On examination the patient did not appear unduly ill; there was some general abdominal distension and tenderness, but no lump or visible peristalsis was detected. A diagnosis of gall-stone ileus was suggested.

Operation.—A middle-line incision was made below the umbilicus. There was some evidence of peritonitis in the presence of turbid fluid. Distended coils of ileum were traced down, and a large stone was found impacted in the lumen. Some inches above this was a thickened and œdematous patch, about 1 in. long, suggesting that the stone had previously been arrested here, and that infection had occurred at this area. No perforation, however, could be found. The stone was removed in the usual way, and the intestine closed. The gall-bladder was then examined, and found to be adherent to the duodenum and still containing stones. The incision was therefore prolonged upwards, and these parts exposed. It was hardly possible to open the gall-bladder, remove the stones and close the incision leaving th

fistula intact, owing to the adhesions. The gall-bladder was therefore separated from the duodenum, and the opening in the latter closed by two layers of sutures. Cholecystectomy, though perhaps the ideal procedure, was not considered justifiable, so that the stones, two in number, were removed from the opening in the gall-bladder and the latter drained in the usual way. The stones, though not as large as that removed from the intestine, would undoubtedly have caused obstruction had they entered the intestine.

The patient made an uninterrupted recovery.

Remarks.

Although such a complication as that recorded in the first case appears very unusual, its possibility must always be borne in mind in operating on cases of gall-stone ileus, or where recurrence of pain and vomiting after operation point to some further obstruction. In this patient a rather too easy acceptance of a diagnosis of peritonitis from failure of the intestinal suture—in spite of a note to the effect that the stone removed was faceted—prevented a further laparotomy, which would in all probability have saved life. It would therefore seem a sound practice to search the distended portion of intestine for a further stone, and also to palpate the gall-bladder, especially if the gall-stone is faceted. In spite of thickening and adhesions in this region, any stone capable of producing further obstruction on entering the small intestine could probably be recognised. This examination could be carried out through the original incision. In cases where no further stone is evident nothing further is required. Where, however, a further stone or stones exist in the gall-bladder their removal must be considered. In some cases the patient's general condition may be such that immediate removal of the further stones may be attempted. Considering, however, that the subjects of this condition are mainly females past middle life, often stout and usually gravely ill, it would undoubtedly be safer in most cases to postpone any attempt at removing further stones until convalescence is established.

A NOTE ON THE DIFFERENTIAL DIAGNOSIS OF ACUTE APPENDICITIS AND ACUTE RIGHT SALPINGITIS.

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IN a recent work[1] on the diagnosis of acute "abdominal emergencies," it is admitted that the difficulty of distinguishing between acute appendicitis and acute inflammation of the right Fallopian tube may be very great. This statement, and the fact that the point made below is not mentioned in text-books on surgery or gynæcology, prompts the following note. Sherren long since pointed out that in acute appendicitis pain is usually felt first in the region of the umbilicus, and only later in the right iliac fossa. This important diagnostic point, not yet fully appreciated, corresponds with Mackenzie's dictum,[2] that lesions of the small intestine cause pain, which is usually referred to the midline, round the umbilicus. In acute right salpingitis, on the other hand, pain is felt almost invariably, and from the first, on the right side. In addition, the pain is usually referred down the right thigh, anteriorly, sometimes as far down as the knee. It is to be noted that other lesions of the Fallopian tube, such as ruptured pyosalpinx, ruptured ectopic gestation, or twisted ovarian cyst, will cause pain having a similar distribution. This point, however, must be made—with inflammation of a retrocæcal appendix, the pain is usually felt from the first, in the right iliac fossa.[3]

In none of the numerous cases of acute appendicitis examined personally, and verified by operation, has pain ever been complained of in the right thigh, in contradistinction to cases of right salpingitis, in which this sign has usually been present. Occasionally right salpingitis and appendicitis have coexisted, and in these cases pain has been felt round the umbilicus, in the right iliac fossa, and in the right thigh.

The distribution of pain in the two conditions is explained by the fact that the Fallopian tube is developed as a lateral organ, and is represented in the spinal cord by the eleventh and twelfth dorsal and first lumbar segments (Head), while the appendix is mesial in origin, and is represented by the tenth and eleventh dorsal segments. On these facts alone, and apart from all other considerations, a correct diagnosis can often be made. In acute appendicitis pain usually starts in the mid-line and rarely passes below the groin, while in right salpingitis the pain starts laterally and usually radiates down the right thigh.

I wish to thank the honorary staff of King Edward VII. Hospital, Cardiff, for permission to examine their individual cases, the result of whose investigation is embodied in the above note.

[1] Cope, Z.: The Early Diagnosis of the Acute Abdomen, 1921, p. 85.
[2] Mackenzie, James: The Interpretation of Symptoms, third edition, pp. 169 and 172.
[3] Cope, Z.: Op. cit., 63.

NOTES OF TWO CASES OF EPILEPTIFORM CONVULSIONS DURING ANÆSTHESIA.

BY H. H. L. PATCH, M.R.C.S. ENG.,
HON. ANÆSTHETIST, ROYAL INFIRMARY AND ROYAL SOUTHERN HOSPITAL, LIVERPOOL.

THE following cases, in which epileptiform convulsions took place during anæsthesia, may be found of some interest. In each case there was no sickness during anæsthesia and recovery was quite normal.

CASE 1.—A male pensioner, aged 39 years. The operation (16/1/22) was amputation of the right little finger, under chloroform (open ether sequence adopted): First stage quiet; second stage boisterous and prolonged; third stage normal; inspirations deep, quiet, and regular; facial colour good, conjunctival reflexes absent, corneal reflexes sluggish, pupils moderately dilated.

The operation having been in progress seven minutes, and the digit having been separated at the metacarpophalangeal joint, I ceased giving the anæsthetic (ether), the patient being sufficiently under for completion of the operation. One and a half minutes after ceasing the administration I noticed spasmodic contractions of eyelids and masseter muscles, slight suffusion of conjunctivæ, and slight cyanosis of lips and lobes of the ears. Pupils moderately dilated prior to this attack, contracted somewhat at the onset. The convulsive movements affected the arms, legs, and abdominal muscles. The attack lasted altogether 40 seconds, and on its subsiding the anæsthesia continued normally.

CASE 2.—M., 25 years, an epileptic since childhood; the last convulsive attack occurred three weeks before operation (17/8/22) for tuberculous knee-joint ankylosed in a bad position of flexion. Anæsthetic adopted, closed ether. The first stage quite normal; second stage prolonged, rigidity of extensor muscles of the neck being pronounced; third stage normal. After four and a half minutes of natural breathing, the airways being perfectly free from obstruction, with pupils on the small side, corneal and conjunctival reflexes present, though sluggish and colour good, I noticed slight suffusion of the conjunctivæ, with contracting pupils and slight blueness of lips and ear lobes, accompanied by slight twitching of lips and epileptiform convulsions of the right upper extremity, other parts of the body being unaffected. Pallor of skin and profuse perspiration followed the attack, which lasted 47 seconds. The anæsthetic was continued as before. When about 20 minutes had elapsed after the attack some slight rigidity of the extensor muscles of the neck was noticed; this quickly passed off, no other symptoms being present.

LONDON DERMATOLOGICAL SOCIETY.—A clinical meeting of this society will be held at 4.45 P.M. on Oct. 17th, at St. John's Hospital, 49, Leicester-square, London, W.C. 2.

THE Society for Constructive Birth Control and Racial Progress ("C.B.C.," 61, Marlborough-road, Holloway, London, N.) is opening a second session of general meetings and lectures on Thursday, Oct. 19th, at 8 P.M., at Essex Hall, Strand, W.C., when the presidential address will be given by Dr. Marie Stopes on the Ideals and Present Position of Constructive Birth Control.

Reviews and Notices of Books.

TEXT-BOOK OF THE PRACTICE OF MEDICINE.

By Various Authors. Edited by FREDERICK W. PRICE, M.D., F.R.S. Edin., Senior Physician to the Royal Northern Hospital, and Physician to the National Hospital for Diseases of the Heart, London; formerly Examiner in Medicine at the University of St. Andrews. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1922. Pp. 1753. 35*s*.

INTERNAL evidence suggests that this volume is designed to meet the needs both of practitioner and undergraduate, though this is not specifically stated; and there is much to be said for the combined manual. In the 1750 pages of this book, closely printed on India paper, the senior student will find a worthy vade-mecum. Dr. F. W. Price has enlisted the services of 25 specialists, allotting large sections to each contributor or to two of them working in collaboration. Nine out of the 12 London teaching schools are represented, and the result is a work in which the teachings of the "London School"—in so far as that can be termed an entity—predominate. The balance in each subject between the needs of the student who feels aggrieved if an examination question lies outside the teaching of his trusted text-book, and the practitioner who cares less about ætiology and pathology than about diagnosis, prognosis, and treatment, has been maintained, although if anything the bias is rightly in favour of the practitioner. The amount of space allotted to certain individual diseases is not, however, always proportionate to their importance. For example, rickets is compressed into three and a half pages, whereas trench fever occupies nine. If psychotherapy is to be tackled at all, four pages seem inadequate for its discussion. This chapter will bear considerable expansion, and might well be transposed to the end of the book instead of being sandwiched between articles on psychasthenia and certification. In a future edition certain other expansions and compressions will doubtless be found desirable; the logical main plan of including mental diseases, and medical diseases attacking residents in other than temperate climates should certainly be retained.

The book is arranged in 20 sections, of which the first deals with infection, immunity, and immune therapy. General infectious diseases are next treated; sections follow devoted to tropical diseases of doubtful or unknown nature, diseases due to metazoan parasites, and diseases due to physical and chemical agents. Diseases of metabolism, and after them those attributable to disorders of the endocrine glands, are next considered. The various systems of the body are then dealt with in turn—due attention being paid to the skin—and the abnormalities and disorders to which they are liable are very clearly detailed. Finally, psychological medicine takes its proper place, following the diseases of the nervous system.

The strong point of this useful text-book is the attention paid to treatment. Practitioners who have severed contact with teaching schools and are deluged with pamphlets by manufacturers on modern advances in colloid or endocrine therapy will be relieved to find, in these succinct clear paragraphs, that therapy is still based on few and simple principles. They will find certain old empirical teachings confirmed and justified by modern research, and, scattered through the book, just a few new biological preparations and other specific remedies which have been isolated or synthesised since their hospital days. But even in those diseases where no striking departure could be chronicled, the available methods of treatment are set forth in nearly all cases with such critical judgment as to make the volume worth buying for this feature alone.

Certain sections will be particularly welcome, among them the illuminating passages by Sir Thomas Horder and Dr. John Matthews on Infection, Immunity, and Immune Therapy, which are preceded by an excellent article on Fever by Prof. M. S. Pembrey. Equally good is the section on Diseases of the Respiratory System, for which Dr. R. A. Young and Dr. G. E. Beaumont are responsible, their account of pulmonary tuberculosis being especially thorough and up-to-date. The same may be said of the editor's articles on Cardiac Diseases, and here the reader, with perceptible relief, finds the text illustrated by heart and pulse tracings. In fact, out of 96 figures in the whole book, 86 illustrate cardiac or circulatory abnormalities, 41 being tracings of electro-cardiograms, the preponderating importance of modern aids to diagnosis in cardiology being thus recognised. The section on Diseases of the Digestive System is perhaps less uniformly good than others. Those portions dealing with Gastric and Duodenal Ulcer are excellent, the detailed and reasoned views on treatment being of great practical value, but the remarks on gastric chemistry and chemical examination on pp. 476 and 477 would have borne expansion. The remark (p. 481) that "the vomiting of early pregnancy is probably reflex; when persistent it is always hysterical," is a didactic statement which would hardly receive general assent from those concerned with investigating the toxæmias of pregnancy.

In the discussion of nephritis Gaskell's admirable classification has been adopted and renal function tests are well described; the authors of this section lay little stress on the importance of non-urea or non-protein blood nitrogen, which many biochemists have proved to be a valuable aid in the diagnosis of uræmia. The work of Canti on the chemistry of the cerebro-spinal fluid is fully dealt with. Readers will welcome an article by Dr. George Graham on diabetes, embracing, as it does, a full account of the treatment usually associated with his name. In the final sections, Dr. James Collier and Sir Maurice Craig deal with Diseases of the Nervous System and Psychological Medicine. Dr. Collier's articles are a real addition to our literature, and those of Sir Maurice Craig and Dr. E. D. Macnamara on Psychological Medicine contain most of what the student may require and much that will be useful to practitioners.

Attention may be called to certain minor defects. The Schick reaction is disposed of in one line (p. 99), while no mention is made of hepatic function tests or of the Sigma reaction in syphilis. A few misprints include the wrong spelling of the names of Jekyll (p. 1475) and Wilms (p. 1029).

Dr. Price and his fellow-writers are to be heartily congratulated on this book, which must be placed in a category of its own. It is neither a text-book capable of entire assimilation by the examinee nor a system of medicine adapted for the scholar. Its place is in the hands of the practising physician, who will find it a means of reference and instruction hitherto denied to him. The size of the volume permits of adequate mention of every subject of medical importance, without thereby becoming ungainly. It is published in a form which embraces the latest advances in knowledge, when more detailed works tend to become out of date before they even reach the press.

PUBLIC HEALTH.

The Chemical Examination of Water, Sewage, Foods, and Other Substances. Second and enlarged edition. By J. F. PURVIS, M.A., and T. R. HODGSON, M.A. Cambridge University Press. 1922. Pp. 346. 20*s*.

THOSE attending courses of instruction for diplomas and degrees in public health, and others who are studying the chemistry of those subjects mentioned in this book, will find the volume useful. The section dealing with water, sewage, and effluents constitutes nearly one-third of the book, and the large number of analyses of authentic samples illustrative of good and bad waters from different sources will be valuable to

the practitioner. The contamination of rivers by sewage and works effluents is illustrated by typical analyses. The analyses of milk, butter, margarine, cheese, edible oils, tea, cocoa, bread, flour, jam, and many other of the ordinary foodstuffs are described. The methods are the best available, and are those which would be used in the laboratories of any analyst of repute, and it is probably in this respect that the real value of the book lies. The analysis of potable spirits is dealt with in a manner so cursory as to be of little value, and the list given of the principal adulterations of beer is misleading. The value of the work would be greatly enhanced if more typical analyses (as are given in the admirable section on water) were quoted, and if the limiting values for impurities, &c., were given whenever possible.

DOSAGE TABLES FOR DEEP-THERAPY.

By Prof. F. VOLTZ. Revised and edited by R. MORTON, M.D. London: William Heinemann. 1922. Pp. 98. 10*s.* 6*d.*

THE difficulties of measurement of X rays for therapeutic purposes are great, and it is only within the last few years that the problems have come even within reasonable prospect of solution, chiefly by the introduction of the iontoquantimeter. By means of this instrument, of French origin but perfected by German workers, it has been possible to elaborate a technique which allows of the measurement of the dose given to organs situated at a distance below the skin. Prof. Voltz's little book consists of 35 pages devoted to the explanation of the tables which enable the operator who has calibrated his tube, to work out, without any elaborate mathematics, the dose that will be given at various depths below the skin, taking into consideration the filter employed and the distance between the X ray tube and the skin. The various factors are simply explained and well illustrated by diagrams. A short chapter is added after the 64 pages of tables, on the management of X ray apparatus and tubes for the highly specialised technique of the Erlangen method. In a brief preface, Dr. Morton states his conviction that those who take up this form of treatment are not likely to regret their decision, especially if they realise from the beginning that its practice is difficult and exacting, and that nothing less than the greatest possible precision is permissible at every stage of the procedure. "There is no room for careless methods. . . . Probably the greatest damage to the future of the method lies in its being taken up by those who are unable or unwilling to give the time and skill necessary for its proper performance." In placing these tables in the hands of English-speaking workers the editor, Dr. Morton, has materially assisted those who are exploring a difficult field of therapeutics.

MATTER AND LIFE.

L'Organisation de la matière dans ses rapports avec la vie. By JEAN NAGEOTTE. Paris: Alcan. 1922. With 152 text figures and 4 plates. Pp. 560. Fr.50.

IN these days of summarised writing and restricted printing it is a treat to have a book in which the author puts out his observations and all his thoughts about them with the prodigality of text and beautiful illustrations which we have here. The point from which he appears to have started is a new conception of the nature of the fibres of connective tissue, of basement membranes, and of the membranes which bound cells. Hitherto these have been regarded either as transformations of the cytoplasm of the cells concerned or as secretions from them. Prof. Nageotte holds that they arise as a sort of coagulum of the proteids of the tissue fluid, the occurrence and precise form of which is to some extent regulated by the cells. Round this he has written a thoroughly interesting, if not always convincing, discourse on the structure and nature of cells, the characters of living matter, and a variety of subsidiary topics. Surgeons will find interest in his account of the theory and practice of using grafts of tendons, nerves, arteries, &c., which have been killed by alcohol or formalin. Such a graft attracts fibroblasts, which re-colonise and reconstitute it into normal tissue; it becomes an integral part of the living organism, about which there is the less difficulty since, according to the author's view, the bulk of normal "living" connective tissue is no more alive than the coral of a polyp. Fibrin even can become by metamorphosis fibrous tissue. Neurologists will turn particularly to the account of the essential structure of the nervous system in which the author makes the myelin of the axis-cylinder and the outer layer of the sheath of Schwann the equivalent of neuroglia, and argues for an essentially anastomotic arrangement of the axis-cylinders when this is not simplified and obscured for special reasons. The various unconventional and even heretical views which are advanced are the result at any rate of a great deal of hard work, and the second half of the book is mostly occupied with reprints of the papers in which the results are given in detail.

SYMPTOMS OF VISCERAL DISEASE.

By FRANCIS POTTENGER, A.M., M.D., F.A.C.P., Medical Director, Pottenger Sanatorium, California. London: Henry Kimpton. 1922. Pp. 357. 28*s.*

"THERE is a patient who has the disease, as well as the disease which has the patient," is the motto which Dr. Pottenger puts to his book, and in his introductory chapter he pleads for a revival of accurate clinical observation. He implies that he lives in a region where laboratory diagnosis has supplanted the careful clinician, but we are, unfortunately, not convinced that his book will assist in the restoration of the true physician to a more reasonable position in that community. Interesting and stimulating though many of its chapters may be, there is a tendency to wide speculation and deduction from the occurrence of certain reflexes which is scarcely permissible in the light of our present limited knowledge. In Chapter III. Dr. Pottenger asserts that certain general symptoms, such as fever, night-sweats, increased pulse-rate, and leucocytosis occur in all toxæmias; "while the symptoms differ according to the degree of the toxemia present, yet some symptoms of this group will be found, no matter what the cause, whether in typhoid fever, a whooping-cough, a bronchitis, an infected tonsil or gall-bladder, a tuberculosis, or a syphilis." We cannot feel such dicta to be valuable teaching for the would-be clinician, nor are our misgivings removed by explanations in later chapters which ascribe the bradycardia of typhoid fever to an intestinal reflex, and the variations in sweating in other infections to equally doubtful causes.

We regret this tendency the more in that the later portion of the book contains a fuller account of the vegetative nervous system than can readily be found elsewhere, and that the volume is illustrated by diagrams, mostly borrowed from text-books, which are admirably reproduced.

LES FAUSSES APPENDICITES.

By THIERRY DE MARTEL et EDOUARD ANTOINE. Paris: Masson et Cie. 1922. Pp. 189. Fr.10.

IT is difficult to come at the truth in the question of intestinal stasis. For many years now there has been an acute difference of opinion amongst surgeons and physicians as to the extent to which such stasis is responsible for disease, and as to the best treatment which should be undertaken when the diagnosis has been made. The authors of this little book take a moderate view and express their ideas lucidly. Their monograph is limited to the description of those forms of stasis which simulate appendicitis. They appear rather to favour the congenital theory of the formation of the various peritoneal bands which cause kinks and partial occlusions, and pay little attention to the lines of stress which Lane so strongly emphasises. They conclude that pain of doubtful origin in the

right iliac fossa is best elucidated by examination by X rays; but they wisely assert that the clinician should in every instance explain the case fully to the radiologist and himself be present at the radiological examination. "Nous ne saurions admettre qu'il suffit d'adresser au radiologiste ces malades avec un 'bon pour une radiographie ou une radioscopie' pour avoir à coup sûr la clé d'un diagnostic difficile."

As to treatment, they consider that medical measures should be fully tried before surgery is considered. When operation is thought advisable they recommend, in the first resort, the undoing of any occluding adhesions and the removal of the appendix; if further measures are necessary, an ileo-sigmoid-ostomy or cæco-sigmoidostomy or even an ileo-transversostomy. Finally, if symptoms persist they consider the portion of the large bowel proximal to the anastomosis should be excised. Anastomosis, in their opinion, should be performed by a Villar's button, and the covering peritoneal layer approximated by the ligaturing together of portions of the contiguous peritoneal surfaces; we can see little advantage and some disadvantage in this method of union. The authors think that it is well to avoid the use of the needle in making the anastomosis. Valuable hints are given as to caution in prognosis. The authors point out that after operation instantaneous cure cannot be hoped for. Whatever the nature of the intervention the intestine must have time to adapt itself, and considerable patience is needed by the doctor and the patient before a final good result has been achieved.

It would appear that the patient is sometimes merely transferred from one to another form of invalidity, and those who are enthusiasts on the short-circuiting operation will do well to consider these conclusions.

COLLOID CHEMISTRY.

Laboratory Manual of Colloid Chemistry. By HARRY N. HOLMES, Professor of Chemistry in Oberlin College, Ohio. London: Chapman and Hall, Ltd.; New York: John Wiley and Sons, Inc. 1922. Pp. 127. 10*s*.

THIS admirable little manual will be found most useful to those teachers, students, and research workers who wish to confirm by personal experiment what they have already learnt from a theoretical study of the properties of the colloids. There are 186 experiments in all, collected from the most various sources, with excellent references to theoretical text-books and larger manuals incorporated in the text. Most of the experiments described are quite simple; their range is wide, for the properties of colloids are not only of importance in pure science, but also in many industrial, culinary, and pharmaceutical processes. Among the 65 experiments indicated as suitable for medical students, some of Bayliss's experiments on Congo red might with advantage have been included; these and other experiments of physiological importance could easily be introduced, however, by teachers of honours classes.

AIDS TO ORGANOTHERAPY.

By IVO GEIKIE COBB, M.D., M.R.C.S., Neurologist, Ministry of Pensions, &c. London: Baillière, Tindall and Cox. 1922. Pp. 183. 5*s*.

THIS little book is practically a pocket edition of Dr. Cobb's well-known volume, "The Organs of Internal Secretion," the third edition of which was reviewed in THE LANCET of Dec. 10th, 1921. Those who have little or no time in which to peruse the larger works on the subject of endocrinology will find here a useful summary. Dr. Cobb asserts on p. 22 that ligature of the vas deferens is followed by atrophy of the interstitial cells of the testicle. This is in direct opposition to the continental view that increase in sexual vigour, associated with hypertrophy of the interstitial cells, results from ligature of the vas, and the operation has been performed abroad and in America on elderly people with this object in view. Dr. Cobb's recommendation of a combination of thyroid and parathyroid extracts in the treatment of certain toxæmias should be useful; some of the ill-effects of thyroid administration can be materially diminished if parathyroid extract is given simultaneously, for the decreased calcium index of the blood caused by the former may be checked by the parathyroid extract. A very small book dealing concisely with a restricted branch of therapeutics has a better chance than one in which large sections of medicine or surgery are compressed into tablet form, and this volume appears to be one of the most adequate of the series of Aids.

LA MÉTHODE PSYCHANALYTIQUE.

By Dr. RAYMOND DE SAUSSURE. Lausanne: Payot et Cie. 1922. Pp. 188.

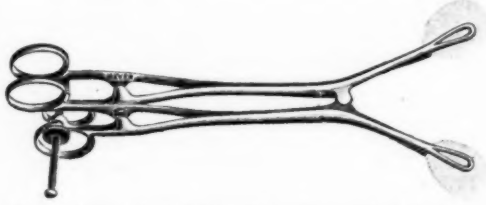
THE output of psycho-analytical literature in England and America has had no parallel in France, and it is significant that what appears to be the first exposition of psycho-analysis in French should come from Switzerland. The writer claims only to give a résumé of theory and technique as applied in medicine, and Freud himself gives his blessing in a short introduction. References to other writers are frequent, and English psychologists find due recognition, but there is little attempt to convince by argument. Dr. de Saussure assumes that the reader takes up the book with a desire to know rather than a need to be convinced. There is an original account of the analysis of a case by Dr. Charles Odier, concluding with a plea for the much debated "short analyses" which, without obtaining an absolute cure, serve the practical end of removing symptoms.

The book provides a clear and authoritative account of psycho-analysis. Its price is not stated, but the make-up is of the kind that enables continental publishers to produce cheaply.

New Inventions.

TWIN TONSIL COMPRESSOR.

I HAVE recently devised an instrument for exerting pressure on the tonsil-bed after enucleation of tonsils. The accompanying illustration indicates its construction and action. It is made of two swab-holding forceps bent at an angle a short distance from the tip,



so that when jointed together, approximation of the handles causes a separation of the blades which, holding gauze swabs, press on the tonsil-bed and effectively control hæmorrhage. The screw-bolt at the handle allows of regulation of pressure exerted, and further of its use in any patient from a child to adult. This twin tonsil-bed compressor may be used at the operation itself, or in case of bleeding after the patient has returned to bed; in the latter case a suitable dose of morphia should be given before application of the compressor. It is easily applied and removed, is light in weight, and remains in position by the pressure exerted on the tonsil-bed. I have used it in many scores of cases and have found it effective as a hæmostat.

The instrument is made by Messrs. Mayer and Phelps, London.

G. GUSHUE-TAYLOR, M.B., B.S. Lond.,
Ilford, Essex. F.R.C.S. Eng.

THE LANCET.

LONDON: SATURDAY, OCTOBER 14, 1922.

The Welfare of the Blind.

THE third annual report of the Departmental or Advisory Committee of the Ministry of Health on the Welfare of the Blind makes pleasant reading for those who are interested in the subject, and the number of those uninterested should be, and must be, very small. There are few professional provinces in which such rapid and substantial progress have been made in recent years, the sufferings entailed by the late war being directly responsible for the advance. The Blind Persons Act has now been in existence for two years and the report of the Committee shows that its effects in ameliorating the condition of the necessitous blind are substantial and progressive. It is, therefore, unfortunate that the details of the provisions enacted by the Act and the actual methods adopted for the relief of the blind are not more generally known. The value of propaganda in drawing the attention of the community at large to any particular subject cannot be over-estimated, and this point should receive the attention of the Advisory Committee. The report of the latter is headed "For official use," and will therefore remain largely unknown—and unread. In contradistinction, the Labour Party has, with energy and foresight, issued a monograph fully describing the Act and its working, and drawing from the latter deductions which are largely in opposition to the opinions and recommendations of the Advisory Committee, a situation which calls for comment.

The outstanding point of contention is the question of voluntary effort. The Labour Party has pledged itself to gain complete municipal control and responsibility for working the Act, and in its manifesto is critical of the failure of voluntary effort to take advantage of the opportunity offered by the Act, and to improve substantially the conditions under which the blind still live. The Advisory Committee, on the other hand, strongly recommend the desirability of fostering the voluntary side of the work and deplore the suggestion of municipal control. The attitude of the contending views may well be illustrated by quoting directly from the two reports. At the Cardiff Trades Union Congress a resolution was passed, which after some preliminary instructions goes on to say, as follows:—

"Notwithstanding anything which may be done to ameliorate the bad conditions of life and labour for the blind by Acts and Clauses, which are mere palliatives, this Congress is resolved upon the principle of direct and complete State and Municipal responsibility, and the elimination of the necessity for voluntary charity for the blind."

The contrary view of the Advisory Committee is thus expressed:—

"We would view the municipalisation of the trading activities of the blind with a certain amount of anxiety. . . . . In our opinion all workshops for the blind should, as far as possible, be conducted on a proper economic basis, and it seems to us that municipalisation may destroy this basis with unfortunate effects on the morale and efficiency of the workers. There is also the danger of the creation of an artificial wage, which would not be accompanied by the ordinary disciplinary methods of dismissal. . . . . We are emphatically of opinion that the best interests of the blind themselves will be served by the continuance and fostering of the voluntary side of the work and we note with pleasure that this is the declared policy of the Ministry."

We much regret the attitude of the Labour Party. Voluntary effort is the basis of our hospital system, for the support and maintenance of which, as the best system for the community at large, so much endeavour is being put forth just now. For the blind, as for other sections of the community, voluntary effort has been the mainstay of work done in the past, and, in our view, it will be the chief source of advance in the future. When Municipal Control enters public interest may fail, and the progress now so certain will falter or cease. What can be effected by voluntary effort for the blind has been shown by the work effected by St. Dunstan's Hostel in the war, and recently by the magnificent report of the National Institute for the Blind, of which a précis was given in the columns of THE LANCET recently. But the public cannot be expected to realise the necessities of supporting any project of relief unless fully acquainted with what is being done and what is required, and the Ministry of Health should stimulate public interest in the great work of aiding the necessitous blind by letting all sections of the community into the details of schemes enacted and progress made.

With regard to the actual working of the Blind Persons Act, we note first that the grant of a pension to blind persons between the ages of 50 and 70 at the same rates and on the same conditions as old age pensions, has resulted in 9107 blind persons being in receipt of this relief on March 31st, 1922. The reduction of the qualifying age for pension to 50 years has proved a very substantial benefit to many of the necessitous blind. Out of a total blind population in England and Wales of 34,894 persons, 1383 are classified as mentally defective, of whom 710 are "unemployable." The relief of this section of the blind community presents the greatest difficulty, and at present the best way of dealing with it has not been arrived at. Obviously enough special homes for these unfortunates form one very practical solution, but efforts in this direction seem to be more or less at a standstill for want of funds. The education of blind children, which is of supreme importance, is considerably hampered just now by the financial condition of the country generally, and by the refusal of the Ministry to allow capital expenditure. The National Joint Council in its pamphlet complains, with some reason, that the school accommodation for blind children remains hopelessly inadequate, and that the voluntary agencies are so far incapable of providing a remedy. It is earnestly to be hoped that the Ministry will take an early opportunity of remedying this state of things. The absolute necessity of the *early* training of the blind cannot be insisted upon too strongly. Upon it very largely depends the power of teaching the blind person to be self-supporting. Far too many of the blind endeavour to earn their living by pure manual labour as handicraftsmen in trades, whereby the market is overstocked and a very insufficient remuneration is obtained. There are now open to the properly educated and intelligent blind a number of callings through which complete independence can be secured; but they demand a special training and education which must be commenced at an early age, and continued steadily through the years of mental growth. Workshop accommodation

is still sadly insufficient, and likely to remain so for a considerable period, but a good advance has been made with regard to "home workers" and "home teaching." With regard to the former, we learn that at the present time between 700 and 800 blind persons, hitherto left largely to their own devices, have been included in organised schemes, and their earnings considerably increased. Home teaching for adult blind is rightly regarded as a most important part of welfare work. The report tells us that there are now 65 sighted and 144 blind and partially-blind home-teachers employed by the various agencies in the country. It is suggested that a more definite status in the matter of qualifications and salary should be given to these teachers and that this should be attained by means of a qualifying examination, the successful passing of which would render the candidate eligible to appointment as a home-teacher with a suitable salary of not less than £150 per annum.

To conclude, it is a great matter of congratulation that definite advance is being made in the work of ameliorating the conditions of the blind in our country. There is plenty yet to do, and a great deal more money and a much greater output of voluntary effort are urgently needed; but, on the other hand, let the exacting critic compare the present state of affairs with that existing ten years ago. In such a comparison there will be found room for much thankfulness.

Scarlatina in the Puerperium.

THE relation between puerperal sepsis and scarlet fever occurring during the puerperium is not yet fully cleared up, although much attention has been given to it. Dr. EUSTACE THORP, in a paper which appeared in our columns on Sept. 23rd, states that he has come across a large number of both diseases during recent years at the Sunderland Infectious Diseases Hospital, to which he is medical officer. In some instances, he tells us, the two affections were running concurrently. This is interesting, for it has been generally accepted that when symptoms indicative of septic infection arise in a puerperal woman suffering at the time from scarlet fever, they represent additional manifestations of the latter disease. Although the gravity of the patient's condition may have become greatly aggravated thereby, the case is still regarded as one of puerperal scarlet fever. Dr. THORP is, no doubt, right in his contention that, in those of his cases where sepsis complicated scarlet fever, the sepsis was a separate infection, just as in an ordinary attack of septic scarlet fever the septic factor in the case is generally acknowledged to be due to an additional infecting agent, a streptococcus not necessarily related to the essential organism of scarlet fever, whatever that may be. In such instances, however, it is not customary to speak of the patient as suffering from two separate diseases. Evidence that scarlet fever itself causes puerperal sepsis can hardly be forthcoming until the essential organism of scarlet fever has been identified. At present we can only draw an inference from the frequency with which one condition has been observed to follow the other. Although considerable difference of opinion exists among experts as to the fatality of puerperal scarlet fever, few, we think, would deny that sepsis is more liable to arise in a puerperal woman suffering at the time from scarlet fever than in one not so affected. If this be so, scarlet fever must be regarded at least as a predisposing cause of puerperal sepsis. Even if we assume with M. H. GORDON that a streptococcus with clearly-defined characters is constantly associated with scarlet fever, more convincing information as to its special characteristics, and the relation it bears to the various streptococci isolated from the blood and uterine tissues in puerperal sepsis, is required before we are in a position to deny the possibility of the one having been derived from the other.

In those cases which Dr. THORP speaks of as suffering from double infection in the sense of two separate diseases, he claims to have traced the source of the septicæmia in each instance. Therein lies the crux of the matter, for it is admittedly difficult to determine the source of infection in the majority of cases of puerperal fever. All rashes may be regarded as of septic origin until proved otherwise, but by reason of the different views which obtain as to the relation between scarlet fever and sepsis in the puerperal woman a difficulty lies in proving the "otherwise." The term raises at once the question of diagnosis. The differential diagnosis between puerperal scarlet fever and septicæmia, pure and simple, is by no means easy, and this obscurity is presumably responsible for the widely different opinions which are held by experienced observers as to their proportionate fatality. It is largely a question of nomenclature. In London fever hospitals rashes which can be strictly described as "scarlatiniform" are uncommon in puerperal sepsis, apart from scarlet fever. Of the two criteria given by Dr. THORP as essential to a diagnosis of scarlet fever—namely, injected throat and double rash—the paramount importance of the former is fully admitted; we can recall, however, cases of puerperal scarlet fever in which the diagnosis was never called in question, where the disease ran its course from start to finish with but a single rash, and that presenting all the characters of the rash of scarlet fever. It seems to us that the vexed question as to whether scarlet fever should be held responsible for many of the deaths recorded as due to puerperal septicæmia—and if so to what extent—can only be settled by the clear identification of its causative agent. We must await the results of the careful investigations which are still being carried out by GORDON, W. MAIR, and others.

The Health of the School Child.[1]

THE special services of education in dealing with the health and physique and mental development of school-children are the subject of the Annual Report (1921) of Sir GEORGE NEWMAN, the Chief Medical Officer of the Board of Education, which is published this week through all booksellers; and although the Report is a brief one the auxiliary services of the medical department of the Board all receive detailed notice. The whole Report is shorter than the previous similar documents, due attention being paid to the need for economy, but alike from the medical and public point of view this brevity has its merits; the message of the Report, showing the directions in which progress has been made and the arguments for various endeavours along differing lines, can be more readily appreciated, though comprehensive evidence in support of some of the statements and deductions is not made available. An early division by the Chief Medical Officer of the various activities under his charge points out the difference between medical work in connexion with elementary education and that in connexion with higher education, and it is well to keep this distinction in mind. In both cases medical inspection is to be followed by

[1] Annual Report of the Chief Medical Officer of the Board of Education for 1921. H.M. Stationery Office. 1s. 6d. net.

suitable treatment, but with the younger children the organisation of physical training as well as the provision of meals, of evening play-centres, and nursery schools, are the important factors, while with the older children more special and intensive training is required, notably for defective students over 16 years of age.

The story of the year 1921 is one of general progress. It is a justification for the establishment in 1907 of school medical inspection, proving that in the case of many children, if they are to reap the advantages of a compulsory system of free national education, their physical disabilities, in detail and in mass, must be taken into account, and defaults when detected must be prevented or remedied. Since the Education Act of 1918 it has become a duty upon education authorities to make arrangements for attending to the health and physical condition of the children in addition to providing inspection, but we all know that the application of medical supervision, which has only existed during four difficult years, is not being worked perfectly and is not yielding its fullest value, and some of the most important passages in Sir GEORGE NEWMAN'S report indicate that the public do not as yet realise to any due degree their own responsibility in the matter. If, as the Chief Medical Officer allows, insufficient attention has in the past been devoted by school medical officers to the systematic study of disease in the child—a thing which in itself must make medical treatment partial and inadequate—we must remember that parents do not as yet play their part either in helping inspection or in meeting the efforts made for treatment, while in many educational areas the community is not sufficiently awake to the need for satisfactory playgrounds and open spaces, baths, and facilities for physical training. But these things are absolutely necessary if real medical treatment is to be undertaken. There are now 976 school clinics, and the attendances of the children are numbered by millions. At these clinics the child can be fully examined and its parents should be assured of prompt advice, but it need hardly be said that this advice cannot be given if the parent does not take the opportunity of meeting the doctor, teacher, and nurse, and does not take pains to understand what is recommended for—to give examples—the remedy of such defects as dental caries, certain skin diseases, enlarged tonsils, or defective vision. We know well that the cost of medical services has risen with the expansion and development of the school medical services. But this should be an additional argument with the public to make the fullest possible use of what is placed before them at so great an expense; while we must all admit that expenditure for the improvement of health and working efficiency of the race is remunerative, whatever the outlay, and economical whatever bill there is to pay. The results of medical inspection show that 40 per cent. out of a total of over 2,500,000 children presented defects, but many of the defects are of minor importance and quite remediable.

That a comprehensive system of physical training should form an integral part of public education is now a truism, and the syllabus provided by the Board of Education places the practice of physical exercise on a broad basis. Organisers of physical training have been appointed by 78 education authorities out of 316 in England and Wales, and Sir GEORGE NEWMAN includes in his report a memorandum from Captain F. H. GRENFELL, Staff Inspector of Physical Training under the Board, which should satisfy us that the full and wise use of the methods of physical education will result in immense benefit to the normal and abnormal school child alike. These children, says Sir GEORGE NEWMAN, do not stand in need of medical drugs and specific medical treatment in the narrow sense so much as (*a*) open air, (*b*) nutrition, (*c*) personal hygiene, and (*d*) regulated exercise and rest. The ultimate ideal of physical education is the strengthening and development of the human body of every child, not the medical treatment of the selected child. To prevent infection is good; to build healthy and resistant bodies is better. The whole Report should be read by the public, for it is a simple and encouraging plea for perseverance in well-doing.

Alpine Treatment of Phthisis.

EACH Swiss canton, with only one exception, has its own sanatorium in the mountains for the treatment of cases of pulmonary tubercle; when the Alps are so near, no doubt seems to arise as to their economic value in comparison with the lowland climate. Before the war most of the adjacent countries also thought it advisable to maintain sanatoria for certain of their tuberculous patients in the Swiss Alps, but altered rates of exchange and economic stress have profoundly modified the situation, and many of these institutions have been obliged to close their doors—among them, the Queen Alexandra Sanatorium in Davos. We set out on p. 830 the circumstances under which this splendidly equipped and situated institution came to be sold a few months ago, and the manner in which the funds are still to be employed, although in a more modest way, for the original purpose of the foundation. Patients of ample means are, of course, again finding their way, and in yearly increasing numbers, to such Alpine resorts as Montana, Leysin, and Arosa, as well as the Davos Valley, but the question whether, when means are scanty, effort should still be made to go abroad, deserves careful study. There are a number of tuberculosis specialists who think it desirable for the tuberculous patient of modest means to seek his cure in the climate where he has to spend his after-cure. The Medical Research Committee had, however, offered a grant of £300 to the Queen Alexandra Sanatorium for investigations in Davos, just before the outbreak of war in 1914 made it impossible to accept the offer. We now learn from the draft of a prospectus issued by an initiative committee in Davos, that there is an intention of making good this deficiency by founding an Institute there for the study of Alpine physiology in special relation to tuberculosis. The site is well chosen, for the health resort is at an altitude of 5000 feet or more, and there is material enough. Accurate physical researches into climate have already been carried out by DORNO and others, but it remains to apply these data to the precise determination of clinical indications for Alpine treatment. A secondary object of the Institute would be to conduct pathological, bacteriological, and clinical investigations serviceable to the treatment of actual patients, this part of the work being of a remunerative nature. Suggested objects of research are the significance of mixed infection in pulmonary tuberculosis, the effect of surgical intervention on the tuberculous lung, the testing of the numerous specific preparations, and the new drugs continually being brought to the notice of practitioners. Should more considerable funds be available, the Institute could then go into such fundamental problems as the relation of the human and bovine types of bacillus, the significance of youthful infection, and the unsolved questions of immune biology. Special courses might be given at the Institute for visiting doctors, and a library and museum would be attached. Naturally the chief difficulty would be in the matter of finance, but the community is being urged to regard the outlay as likely to enhance the reputation of Davos as a health resort and to result in a larger number of patients being attracted thereto. Certainly the time has come when the claims made for Alpine treatment should be put on a scientific basis. Prima facie the case is good.

Annotations.

"Ne quid nimis."

COCAINE AND ITS DISTRIBUTION.

THE illicit use of cocaine by many persons continues to be forced upon the public notice by the reports of prosecutions in the newspapers, and it has been stated that the Government intends to bring in legislation in the autumn which will increase the penalties to be inflicted upon illicit sellers and importers of the drug. At the same time there is discussion as to the possibility of instituting, through the League of Nations or otherwise, international control of the production and sale of cocaine and kindred drugs by manufacturers. Prevention of this kind must clearly be an effective solution of the problem which arises out of the easy and profitable evasion of penal laws. The object to be arrived at must be the cutting down of the supply of cocaine to the more or less ascertainable requirements of medicine. Illicit users of cocaine and their suppliers create a demand for a surplus over this which, no doubt, is paid for at high rates, but the production of such a surplus by known manufacturers is capable of prevention, if every Government concerned is willing to pass laws that will have that effect. Agreements, however, between nations, even with so desirable an end in view, may take some time to complete and carry into effect, and meanwhile we may have to be satisfied with such measures as our courts can enforce within their jurisdiction.

It appears to be certain that an increase of the penalties already provided would meet with general approval, even from those who appreciate the fact that it is the difficulty of detecting offenders rather than the lack of power to punish them that enables the evil to continue. Some have even suggested flogging for illicit dealers in cocaine, not taking into account the fact that such a measure would merely mean the employment of more women, who, of course, cannot be flogged, in the work of distribution. The power to pass longer sentences of imprisonment and sentences of penal servitude after repeated convictions will no doubt be proposed, and it would seem advisable to provide for similar increased severity in the case of "wholesale" traders, as distinct from the retailers of small quantities, who deal directly with drug addicts and who appear most frequently in the police courts. Cocaine must pass through many hands before it reaches these last, and through the hands of persons fully aware of its ultimate destination. The power to impose penal servitude upon any person found in the illicit possession of a defined substantial quantity might act as a deterrent, and as presumably the trade is handled by individuals rather than by firms, the relegation of one or two of these to prison for some years would cause an appreciable interruption in the traffic. Longer terms of imprisonment and penal servitude will, however, have to be combined with a diminished production before this profitable and baneful form of smuggling is stamped out.

THE LIMITATIONS OF ENDOCRINE THERAPY.

ORGANOTHERAPY often consists in the giving of a substance of unknown composition and of doubtful stability, obtained in a manner unknown to the prescriber, for disorders the ætiology of which is obscure. This was the attitude taken by Prof. F. S. Langmead in a recent lecture before post-graduates at St. Mary's Hospital Medical School. He deprecated the view, which has obtained many protagonists, that the ductless glands are the super-organs of the body, controlling it in health and in disease throughout life, determining sex, and moulding personality. Even physiologists, he thought, had too readily accepted the view that extracts made from ductless glands represent the internal secretions of those glands, and demonstrate their normal action. This conception, possibly quite erroneous, when extended and loosely applied, has been largely responsible for the present highly unsatisfactory and unscientific position of organotherapy and has led to a commercial boom in visceral and glandular extracts justified neither in theory nor in therapeutic results. For a ductless secretion to be of use in treatment it should be both stable and stored under normal conditions in the gland from which it is obtained. These requirements, said Dr. Langmead, were met with certainty only by thyroxin, the secretion of the thyroid gland, explaining the different order of value of thyroid extract from that of other glands. Researches into the physiology of other ductless glands has provided two potent therapeutic agents, adrenalin and pituitrin, but he pointed out that adrenalin no more represents the whole secretion of the adrenal gland than does an extract of the posterior lobe that of the pituitary. Warnings like this are necessary, for in endocrine therapy desire tends to outrun performance. It is important for us to distinguish between true hormone therapy and treatment by extracts obtained from different organs, and to keep close to the line of ascertained truths, if this branch of medicine is to be cleared from the pall of reckless assumptions and commercial enterprise in which it is now befogged.

PHONETIC RECORDS IN DIAGNOSIS.

A RECENT number of the *Wiener Medizinische Wochenschrift* reports a lecture delivered by Dr. E. W. Scripture, at the University of Vienna, on experimental phonetics, in which he recounts the efforts made to render this method serviceable to medicine. Speech is registered on a recording drum and analysed under a microscope. In disseminated sclerosis a peculiar wave form appears in the registrations in every case, even when no peculiarity of speech can be detected by the ear. This makes for early diagnosis. In general paralysis a characteristic tracing is recorded at a very early stage, again before anything can be heard. Dr. Scripture laid stress on the importance of any aid to correct diagnosis at a time when these conditions are apt to be confused with neurasthenia and hysteria. Microscopic measurement of the waves in phonetic records shows that idiopathic epilepsy is characterised by a peculiar form of speech melody which occurs in no other disease yet investigated and which cannot be imitated. Comparison with other records has satisfied Dr. Scripture that epilepsy is not a disease of the brain in the strict sense, but is the result of the epileptic's peculiar mental constitution. His conclusion may be put in relation with the view, held on other grounds, that idiopathic epilepsy is a psychic and not a cortical disease.

A NEW RUSSIAN MEDICAL PERIODICAL.

WE have received a copy of the first number of *Meditzinskaia Bibliographia*, a new medical periodical published by the *Narkomzdrav* of the Soviet Government in Moscow. *Narkomzdrav* is a "portemanteau" word for *Narodnoi Kommissariat Zdravo-okhranenia* (N.K.Z.), or National Commission for Preservation of the Public Health. So little is known with accuracy of what is passing in Russia at the present time that any document which throws light on the conditions obtaining in that country is welcome. One section of the periodical is devoted to Decrees and Regulations of the Soviet of National Commissions; from these it may be gathered that all publications, medical or others, are under the direct control of the central Soviet authorities. An article entitled Publications of the N.K.Z. states that between January, 1919, and January, 1922, 93 brochures and 52 leaflets on public health matters were issued, 1,594,000 copies of the former and over 9,000,000 of the latter having been distributed, and that literature aimed at diffusing knowledge on sanitary questions among the people was published not only in Russian, but also in the languages of the various racial minorities, such as Tartar, Tchuvash, and Hebrew. The present

periodical appears to be the eighth issued by the N.K.Z.; the complete list is given as follows: (1) The *N.K.Z. News*, monthly, edited by Dr. Z. P. Solovief; (2) *Clinical Medicine*, monthly, edited by five professors; (3) *Referativni Meditzinski Journal*, edited by four professors (largely devoted to extracts from foreign medical literature); (4) *The Successes of the Physical Sciences*, organ of the Institute of Biological Physics, edited by Prof. P. P. Lazaref, and appearing three to five times yearly; (5) *Journal* of the Institute of Experimental Biology, twice yearly, edited by Prof. Koltzof; (6) *Bulletin* of the organisation section of the N.K.Z., twice monthly, containing educative articles, orders, circulars of government, &c.; (7) *Gynæcology and Obstetrics*, once in two months; and (8) *Meditzinskaia Bibliographia*, the journal under notice. The N.K.Z. was brought into existence in 1918; among its objects is that of publishing scientific works on medicine, hygiene, and sanitation, and of coöperating in the work of various scientific societies, institutions, and individuals. Medical periodicals, other than those in the above list, are, it is stated, published in Moscow, Petrograd, Kharkof, and other large centres. Among the many obstacles to be overcome by publishers mention is made of the scarcity of paper, the various deficiencies in the technical means of publication, and the difficulty of obtaining medical literature from foreign countries. In this last connexion, there appears in the section "Bibliography" a list of the foreign periodicals received by the Library of the *Narkomzdrav*; it occupies three pages, and we note with regret, hardly with surprise, that the vast majority of the journals named are German. Only six are periodicals published in the English language, and of these four are American, while two only—*The Lancet* and the *British Journal of Ophthalmology*—are British. Of the purely medical articles appearing in this number, two are of topical interest—one by Dr. N. A. Semashko, on Supplementary Foodstuffs in Times of Famine, and one by Dr. M. Multanovski, reviewing the literature on the Balneology of Siberia. The *Meditzinskaia Bibliographia* contains 56 double-columned pages; it is printed with the new form of spelling of the Russian language, which, to those familiar with the older spelling, gives it a strange appearance. The editors are Dr. I. A. Bagashef, Dr. E. I. Kvater, and Dr. N. G. Freiberg. In considering the serious difficulties with which all forms of journalism are beset in Russia at present, they are to be congratulated on the production.

THE SEPTIC TANK AS VERMICIDE.

RECENT work in India by J. Walter McGail[1] and in British Guiana by M. Khalil[2] has led to the somewhat disquieting discovery that septic tank effluent is not free from ankylostome larvæ and eggs. All connected with sanitary problems in the East hoped that the installation of such tanks would not only greatly improve sanitary conditions, but that it would finally get rid of the danger of spreading hookworm disease by pollution of the soil. Both these workers have examined the effluent from septic tanks, and have discovered hookworm larvæ in it. It follows either that the effluent must be sterilised or that great care must be exercised in its disposal. McGail points out that chloride of lime added to the effluent in the proportion of 5 gr. to the gallon, as laid down in the Bengal Factory Act, may suffice to render it free from intestinal bacteria, but is not strong enough to have a lethal action on the larvæ. Khalil suggests the use of copper sulphate, but this might be impracticable on the score of expense. In spite of these disappointing discoveries, it must not be imagined that septic tanks have been shown to be useless. This is far from being the case. Nothing could be more dangerous than the presence in close proximity to villages of patches of ground highly contaminated with fæcal discharges, and providing admirable hatcheries for ankylostome larvæ. A properly constructed septic tank is a great improvement on these wilful centres of distribution. Moreover, there is reason to believe that tanks which are in a good state of activity, not overworked and not too full of sludge, yield fewer larvæ than those that are improperly used. Probably with some slight alteration in design the larvæ might be retained within the tank itself; this is a matter for investigation. It remains also to be seen whether the new activated sludge, which is so valuable as a manure, will also contain living hookworm larvæ. Should this be so, care will have to be exercised in its disposal, or the earth in the neighbourhood of villages and towns will remain as before contaminated with larvæ. Alleged improvements in sanitation must be scrutinised from all points of view, for the amount of damage done by dysentery and enteric bacteria may be less than that brought about by intestinal worms.

[1] Indian Journal of Medical Research.
[2] London School of Tropical Medicine: Department of Helminthology. Collected Papers. September, 1922. Nos. 16–25.

THE RADIATION OF TUBERCULOUS GLANDS.

RADIUM is becoming well established as a curative agent for tuberculous glands. Such treatment began at the London Radium Institute in October, 1911, and in the first published report of this institute, Captain A. E. Hayward Pinch described in detail two cases successfully treated by this method. Mr. Echlin Molyneux in our columns this week records his experience of the last eight years, which has convinced him that the day of radical operation for tuberculous adenitis will soon be past. He has treated tuberculous adenitis of every grade, some with suppuration and secondary infection, and in every instance the swellings, including even old sinuses, have faded away. His experience is fortunate, for when once caseation has taken place other observers have found it advisable to remove the caseous material by surgical procedure, after which irradiation will bring about a gradual curative fibrosis of the diseased area. In the less advanced cases, however, there is substantial evidence that irradiation is useful. According to the annual report for 1921–22 of the Metropolitan Asylums Board an applicator containing 15 mg. of radium bromide, acquired by the Board in 1920, has been used at Queen Mary's Hospital for about 180 tuberculous glands in 48 patients, and the results have generally been satisfactory. The exact method of action of the radium is perhaps, at this stage, less important than the successful results, but it is well known that exposure of tubercle cultures to the action of radium rays inhibits bacillary activity so that subsequent subcultures grow more slowly than the controls and exhibit many involution forms. We may therefore assume, with some degree of probability, that prolonged irradiation of tuberculous glands weakens the vitality of the infecting bacilli, and allows the phagocytes to perform their beneficent work of ingesting the bacilli more easily and completely.

SYPHILIS OF THE FEMALE URETHRA.

Dr. Loyd Thompson,[1] of Arkansas, remarks that it is not generally known that the female urethra may be the seat of the various lesions of syphilis, although this fact was recognised in the early part of the eighteenth century by Astruc, who made a differential diagnosis between chancre of the urethra and gonorrhœa in both men and women. No mention appears to have been made in the literature of syphilis of the female urethra until 115 years later, when Ricord in 1851, in his famous *Lettres sur la syphilis*, taught that the female as well as the male urethra might lodge the syphilitic chancre. He did not, however, recognise other forms of urethral syphilis. Chancres of the female urethra usually result from forcing of infective material into the canal during coitus, or they may arise, as in a case recently seen by Dr. Thompson, by extension from meatal lesions. The first symptom is generally a discharge which is usually

[1] Urologic and Cutaneous Review, September, 1922.

regarded as gonorrhœal. There may be pain on micturition, but as a rule there is not. Induration is detected by bimanual examination, the index finger of one hand being introduced into the vagina while the other index rests on the meatus. Typical inguinal adenopathy is present. The progress of urethral chancre is sluggish, probably owing to the irritation caused by the passage of urine, and on healing more or less stricture results. The condition is distinguished from gonorrhœa by the character of the discharge, which is much less profuse, is sero-sanguineous instead of being purulent, and contains *Spirochæta pallida* instead of gonococci. Macular lesions of the female urethra have been seldom observed, but would doubtless be more frequently found if the urethra were carefully examined in all cases of early syphilis in women. Dr. Thompson thinks it likely that the itching and burning occasionally noticed during the early eruptive stage in women are due to macular lesions, as the symptoms readily clear up under antisyphilitic treatment. Primary gummas of the female urethra are very uncommon, though as extensions from the surrounding tissue urethral gummata are more common in women than in men. They are usually found from 10 to 20 years after infection, but they may occur as early as three months after the chancre. They are painless at first, but become more or less painful and associated with difficult micturition as ulceration takes place, and a discharge of variable quantity develops. The condition must be distinguished from epithelioma in which hæmaturia is frequent, the pain more severe, and adenopathy is present. The history, other evidence of syphilis, the Wassermann reaction, and bacteriological examination also serve to differentiate gumma both from epithelioma and from gonorrhœa. The prognosis of urethral gumma is not so good as that of chancre, but under proper treatment healing should take place with nothing more than some degree of stricture or other deformity.

THE MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE SOCIETY, LIMITED.

THE annual general meeting of this Society was held at the offices of the company, 300, High Holborn, on Oct. 2nd. In his address from the chair Dr. F. J. Allan stated that business in both the sickness and life insurance branches had been well maintained. The low death-rate shown in the Registrar-General's report for 1921 was reflected in the sickness claims, which were considerably below expectation. The number of motor accidents had been rather large. In the life insurance section business was steadily but slowly being built up as the profession gradually learnt that the company was open to transact life assurances up to any amount at particularly low premiums. A number of members had taken out additional policies, but many were already insured up to their limit; he looked forward, however, to increased business from those who were not insured and from younger medical men. A useful branch of insurance, it seemed to him, was the partnership insurance, for on a partner's death a practitioner might be called upon to pay for the share of a practice. The Society's premiums were practically equal to the non-profit rates of other companies, but they were able to recommend the distribution of a bonus; he understood that the Society's rates were considered as a notable achievement in insurance. There had been a slight increase in the number of annuitants, to whom the amount paid during the year was £5000. As an example of the members who had secured a good investment by paying, in the past, small premiums in order to ensure an income on reaching the age of 65, he quoted the instance of a member, dying at the age of 87, who had paid in less than £300, and had received a pension of £50 a year for 22 years. The directors were satisfied that the increased expenditure on management (total management expenses: sickness and accident fund, 15·8 per cent.; life insurance fund, including annuities, 8·1 per cent.) was not excessive. The total life insurance funds amounted to £99,703 at the close of the period under review, and the total life insurance fund amounted to £241,040—an increase of £27,915 on the previous year. The chairman also presented the valuation report prepared by the Society's actuary. The bonus declared on the sickness insurances is in the form of a rebate of premium, according to the time the policy has been in force. Starting with a rebate of one full annual premium for those in force 20 years or more, it is graded down by proportions to 25 per cent. of one annual premium for those in force five years and less than ten. The system is fair and equitable to all members, and in the case of insurances in force 20 years, is practically equivalent to an annual rebate of 5 per cent. of each premium paid during that time—a generous provision, inasmuch as it is not affected by any sickness benefit that may have been received. In the life assurance branch, whole life and endowment assurances are entitled to a reversionary bonus of 10*s.* per cent. per annum on the sum assured on policies on which at least three full annual premiums have been paid. A complete list of investments is published so that members may see for themselves exactly in what stocks their monies are invested.

PRESSURE EFFECTS OF A DISTENDED CÆCUM.

THE following case is reported by Dr. S. Lieben, of Prague, in the *Medizinische Klinik* of Sept. 3rd. A woman, aged 48, was suddenly seized with acute pain in the lumbar region and in the right leg. On examination the right leg was found to be uniformly swollen, the veins being neither visible nor palpable; the left leg was normal. The abdomen was somewhat distended, but nowhere specially tender. When the patient lay still the pain was absent, but the slightest movement caused severe pain in the back and leg. On the possibility of a thrombus, strictest rest was ordered, combined with enemata to relieve the abdominal pressure; after a large motion had been passed, the condition was momentarily relieved. Twelve hours later the swelling of the leg had increased, the temperature then reaching 38·2° C., and the pulse 102. Tenderness became apparent in the right iliac fossa, where a soft tumour arising out of the pelvis was distinctly palpable. Rectal and vaginal examination was negative, and owing to the tenderness the mass could not be felt bimanually. Twenty-four hours later the condition had progressed, the swelling was larger and more painful, and no further fæces or wind had been passed, even after oil and soap enemata. The possibility of a thrombosis of the mesenteric veins, associated with one of the iliac vein was considered, and as the general condition was good operation was postponed another 24 hours. The intestinal obstruction, however, remained complete, and as no improvement took place operation was decided upon. The cæcum was found much distended; the peritoneal coat had split in two places, the ascending and transverse colon was distended, and the descending colon and the small intestine collapsed No obstruction was found in the course of the colon, but some dense membranous adhesions were discovered between the cæcum and the ascending colon, burying the appendix. The cæcum was apparently kinked by these adhesions. They were divided, the tears in the cæcum were sewn over, the cæcum was punctured with a trocar, brought out of the lower end of the abdominal wound, and stitched there. Large masses of fæces and much flatus escaped. The colon was washed out from the cæcal opening, the fluid passing freely through to the rectum. Twelve hours after the operation the iliac swelling had entirely disappeared, and the leg was its normal size. Eight days later the cæcal fistula was almost closed, and motions were passed regularly per rectum. The swelling of the leg in this remarkable case was apparently due to the pressure on the iliac vein from the distended cæcum which was prevented by the adhesions from expanding forwards.

DANGEROUS DRUGS ACT, 1920.

NEW Regulations are announced under this Act amending those already in existence. They come into force forthwith. The object of the amendments is clear. Thus, the persons authorised to give prescriptions for dangerous drugs may no longer prescribe for themselves, a regulation, which has the concurrence of the General Medical Council, which has been made because cases have recently come to official notice in which medical men, who were victims of the drug habit, procured considerable quantities of cocaine and morphia by giving prescriptions made out to themselves. The new restriction will not affect a practitioner's existing powers of procuring the drugs for use in his practice, and it is a little difficult to see how it will have any force with a real addict. Secondly, it is made an offence to *attempt to obtain* the drugs to which the Act applies. A person who tries to obtain drugs from a chemist by misrepresentation, even though the chemist discovers the fraud before actually parting with the drugs, will be liable to penalty. All persons dealing in the scheduled drugs must preserve for two years all prescriptions and records which the Act and Regulations direct them to keep. Copies of the amending Regulations may be obtained through any bookseller or direct from H.M. Stationery Office.

THE MODEL ABATTOIR SOCIETY.

THIS Society was founded in 1886 by Benjamin Ward Richardson, who was one of the first to advocate the humane killing of animals, the better hygienic structure of slaughter-houses, and cleanliness and despatch in dealing with carcasses and meat. It is to commemorate the life and work of this noted sanitarian that Sir William Collins is to deliver a lecture in the Barnes Hall of the Royal Society of Medicine on Oct. 12th. The Model Abattoir Society has for its objects the provision of suitable slaughter-houses, the furtherance of humane methods of killing, the dressing and preserving of carcasses, water-supply, the quick removal of offal, blood, and refuse, the inspection of all animals for food, hygiene of the abattoir and lair, and meat storehouses. The conditions in many private slaughter-houses leave much to be desired both as regards the situation, structure, and convenience of the building used and the arrangements for inspection. Under present conditions there is every facility for meat to become contaminated in its passage from the animal carcass on the floor of the slaughter-house to the mouth of the consumer. Meat quite unfit for human consumption may well escape the barriers and be offered for sale, especially in country districts. However, it is difficult to see how, without further research, the Society can advance on the present methods of killing animals. The ideal is that they shall be killed without pain and effectively bled. Whether the mechanical pistol or the poleaxe in skilled hands is the more humane method of despatch is open to question. Up to now no lethal drug has been found that does not have an injurious effect on the blood or flesh of the animal. In order therefore to carry out thoroughly one of the tenets of the Society—viz., "to illustrate and teach the most rapid, skilled, and humane methods of slaughtering all kinds of animals intended for human food," it is essential that skilled and systematic observation be conducted in methods of slaughter. Yet many men, and some societies, who clamour for humane treatment would be among the strongest objectors to the experimentation, investigation, and research that would be necessary for this end. Other prejudiced observers might contend that the matter is already settled. There are, however, certain obvious directions in which reform is desirable. Vast quantities of flesh are never inspected at all; some inspections are merely perfunctory, and in many other cases it is impossible to inspect the supply effectively because there are no central public abattoirs, but only scattered and badly managed slaughter-houses. The field to be compassed is large, and the Society will need both abundant energy and ample means.

GREAT GENEROSITY.

MANY are the bequests made by members of the medical profession for charitable purposes. Two remarkable examples have occurred within the past few weeks. The late Sir James Affleck, whose death was announced in THE LANCET of Sept. 30th, left "to the Royal Infirmary of Edinburgh, in which a large part of my life-work has been done, the sum of £5000, free of legacy duty, desiring, if the managers approve, that a bed, to be named 'The Affleck Bed' be marked in one of the wards where I served, in memory of the deceased members of my family and myself." In addition, he left £1000 for the purchase of radium for the use of the infirmary and £2000 to the nursing department of the infirmary, to be applied in the way that seems best to the convener of the house committee, the superintendent, and the lady superintendent of nurses. To the Royal Edinburgh Hospital for Incurables (Longmore and Liberton Hospitals) he left £5000, and to the University of Edinburgh £1000, of which half is for the University library; the other half to be invested, and the annual income to be used for a prize or medal to be awarded to the most proficient student of medicine or law in the class of medical jurisprudence, to be named "The Maclagan Prize." The testator also left £500 to the Royal Hospital for Sick Children, Edinburgh, and other smaller charitable bequests. The will of Dr. Matthew Mitchell Bird, medical superintendent of St. Mary's Hospital, Paddington, for over 30 years, is a simpler but no less moving document. Having disposed of his books and personal effects to medical friends, he left £100 to his executor, £100 to the sister housekeeper of St. Mary's Hospital, and his entire fortune of £11,000 to St. Mary's Hospital for general purposes. Such gifts have much more than a monetary value. They are acts testifying faith in the voluntary system, as well as expressing gratitude to the institution and the system for the opportunity of the life-work of the testator. Such clear signs of confidence in the perpetuation of the voluntary system from those who have had full reason to appreciate the difficulties through which hospitals are now passing should bring cheer to all those who are working for its support. They certainly conduce to such great acts of generosity among laymen as that evidenced in the recent will of Mr. Daniel Clark, of Cheltenham, whose bequests to hospitals and allied institutions reach a total of some £44,000.

ALBUMINO-LEUCOCYTIC DISSOCIATION IN THE CEREBRO-SPINAL FLUID.

FEW diseases of the nervous system show a symptomatology so various and complex as meningeal neoplasms. From a clinical picture of a most striking character with serious and persistent manifestations of motility, sensation, and reflexes, one may descend to other clinical pictures almost featureless with indefinite and scanty symptoms which do not permit of any accurate diagnosis. Examination of the cerebro-spinal fluid often throws considerable light on these obscure cases, especially when studied from the point of view of reciprocal relations of parallelism or deviation of certain reactions. It is well known that in diseases which, as a rule, show a meningeal reaction the increase in albumin goes pari passu with an increase in the number of leucocytes, so that there is a true albumino-leucocytic parallelism. But it happens in some cases that this harmony of behaviour between the albumin and the cellular elements cannot be verified, so that there is a deviation or disagreement, or in other words, an albumino-leucocytic dissociation. In general the sign of dissociation is that with hyperalbuminosis there is a scarcity or even complete absence of cellular elements. Prof. Piero Boveri[1]

[1] Il Policlinico, xxix., Practical Section, July 31st, 1922.

considers this dissociation to be characteristic of primary neoplasms of the meninges and describes two interesting cases.

One was a woman admitted into hospital with uræmic coma; the cerebro-spinal fluid was slightly xanthochromic and gave positive reactions to phenol and permanganate (reactions of Pandy and Boveri), the quantity of albumin was 2 per mille, but, on the other hand, there was no lymphocytosis, Nageotte's cell giving only 0·5 per cubic millimetre. The autopsy showed, besides renal disease, a capsulated meningeal tumour of the size of a pigeon's egg under the right occipital lobe, of the nature of a highly vascular endothelioma.

The second case was that of a young woman admitted for dry tuberculous pleurisy, who was suddenly seized with shivering, headache, vomiting, and nuchal pain with rigidity. The cerebro-spinal fluid was clear and pale, without reticular formation; reaction to ammonium sulphate and permanganate was very feebly positive, and there was increase of glucose and lymphocytes, Nageotte's cell showing 100 per cubic millimetre. The Wassermann reaction was strongly positive, and mercurial and arsenical treatment effected a cure of the nervous symptoms.

The interest of these two cases lies in the albumino-leucocytic dissociation of the cerebro-spinal fluid. In the first case there was a mechanical obstacle in the nature of a tumour which prevented the normal circulation of the cerebro-spinal fluid, and there were compression and stasis with serous transudation and consequent hyperalbuminosis. Toxic or infective phenomena were absent and hence there was no lymphocytosis. In the second case, on the other hand, there was a latent localised syphilitic infection with implication of the meninges and periosteum of the first cervical vertebræ, hence there ensued a marked leucocytosis, while the albumin of the cerebro-spinal fluid did not undergo any change. The clinical deductions from these two cases appear to be that hyperalbuminosis of a high degree, even with obscure or latent symptoms, indicates a slow compression of the cerebral or spinal meninges, while hypercytosis without corresponding hyper-albuminosis is the expression of an acute inflammatory and irritative process of toxic or infective nature, most frequently syphilitic. These changes are in no sense pathognomonic, but in doubtful and atypical cases their presence may be a criterion of value which, taken in conjunction with accurate clinical observation of the patient, may prove a useful guide to diagnosis.

THE first meeting of the 150th session of the Medical Society of London will take place on Oct. 16th, at 8.30 P.M., when Lord Dawson of Penn will deliver the presidential address entitled Certain Developments in Medicine.

IN accordance with custom the Council of the Royal College of Surgeons of England has arranged the specimens recently added to the Museum as a special exhibition, which will remain open until Nov. 10th. There is an interesting ophthalmological collection presented to the College by Lieut.-Colonel R. H. Elliott. Nearly a hundred of the specimens prepared by the late Prof. Onodi have been mounted and described.

NATIONAL MILK CONFERENCE.—Our readers may be reminded that the National Milk Conference will be held in the Council Chamber of the Guildhall, London, E.C., on Monday, Tuesday, and Wednesday next week, the opening meeting being on Oct. 16th at 10 A.M. The sessions last from 10 A.M. till 1 P.M. in the morning and 2.30 to 5.30 P.M. in the afternoon. Applications for seats should be made to the hon. secretary of the Conference, 3, Bedford-square, London, W.C.

ROYAL INSTITUTE OF PUBLIC HEALTH.—A course of eight lectures on Maternity, Child Welfare, and School Hygiene will be delivered at the Institute, 37, Russell-square, London, W.C. 1, on Wednesdays, at 4 P.M., beginning on Oct. 18th. The lecturers will include Prof. Louise McIlroy, M.D. (Oct. 18th), Dr. G. E. Oates, Dr. W. M. Feldman, Dr. Margaret Rorke, Dr. Eric Pritchard, Dr. Harold Scurfield, Dr. C. E. Wallis, Dr. C. W. Hutt, and Dr. C. W. Saleeby. The lectures are free and no tickets of admission are required. Full particulars may be obtained on application to the hon. secretary at the Institute.

THE SULPHUR SPRINGS OF THE PYRENEES.

ALKALINE sulphur waters, charged with sulphide of sodium, impregnated to a varying degree with sulphuretted hydrogen, and often of high temperature, are the particular possession of the Pyrenean spas, and while several of these spas can claim long historic renown, others have a substantial record of services offered to the afflicted, and attract year by year faithful groups of patients. Until recently, however, it cannot be said that much endeavour was made by the medical profession to appreciate the exact virtues of alkaline sulphur waters: for certain disorders it had been traditional to suggest certain resorts, and as in a certain proportion of cases good results followed, the tradition remained undisturbed.

But balneology is now arriving as a branch of exact knowledge, and though the mystery which formerly hung over the medical employment of mineral waters—and which was not without its benign influence—may be somewhat dissipated by physiological and chemical research, the growing ability to give scientific reasons has made the prescribing of "taking the waters" a more orderly and rational proceeding. Thermal sulphur waters have shared in the progress, and while it is admitted that much of their chemistry still remains for elucidation, and that certain of their virtues bear little relation to that chemistry, the spirit of research is alive, and is leading already, not only to great improvement in the technique and accommodation of the spas, but to a closer recognition of the relations that balneological treatment should bear to general therapeutics. Balneology has become a part of climatic treatment, at a time when the influences of climate and of physical geography are receiving close attention, and if the merits of particular waters, and even of particular procedures, may thus lose the magnificence of the unknown, this loss should be more than compensated for by the broader comprehension of the logical principles which underlie spa treatment.

Several things have combined just now to focus interest in this country upon the Pyrenean *stations thermales*. Our connexions with France, despite political complications, have been drawn closer by companionship in arms, while for the opposite reason those with Germany have been much relaxed—facts must be acknowledged even though pure medicine may not rejoice over them. The position of international exchange gives many an opportunity to benefit by sojourn in France, who in normal times would have been deterred by the expense, and who are not attracted by analogous advantages elsewhere. And in the meantime the Pyrenean resorts are making spirited efforts to deserve the increased support of a British clientèle. At many of the *établissements* great improvements have been recently executed or are under weigh; the towns are preparing to meet the needs of more visitors by providing suitable accommodation; and, lastly, the big railways which afford the means of access are projecting new lines, while an excellent motor-car service has been instituted, linking up the Pyrenean country from the Mediterranean to the Atlantic.

In these circumstances it was a natural, though graceful, act on the part of the Chemins de Fer du Midi to invite a body of English medical men to inspect a representative group of the Pyrenean spas, that they might see for themselves what could be done for their patients. The *stations* visited included Vernet, Ax, Luchon, Bagnères de Bigorre, and Cauterets, and the information obtained, as well as the material evidence displayed, went to show that those concerned in the management of the spas, both medical and lay, have resolved on doing their utmost not only to retain the ancient prestige, but to deserve it by a modern spirit of scientific progression.

THE EASTERN PYRENEES.

Vernet-les-Bains.

The spas were visited from the Mediterranean towards the Atlantic coast, the first important stop being made at Vernet, in the Eastern Pyrenees.

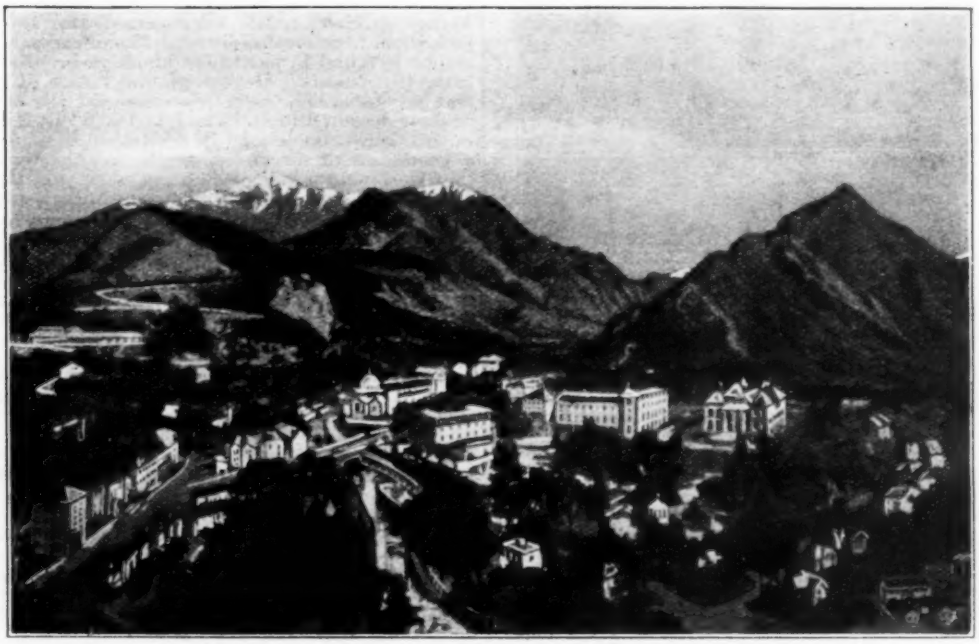
The rain average of the Eastern Pyrenees is very low, and though the baths at Vernet are 2000 feet above the sea-level the tonic effects are softened by the southern latitude; the whole slope, the upper part of which is occupied by the *station*, is sheltered on the east by the mass of the Canigou, the result being a remarkably equable temperature, enabling the season at Vernet to continue all the year round. The slope has a fall of 750 feet from Vernet to the end of the valley, and the old town of Vernet lies just below the bathing establishments. Of these there are two—the Thermes Mercader, and the Bains des Commandants—representing two groups of springs whose composition and temperature vary slightly. Both groups contain, in addition to sodium sulphide and sulphuretted hydrogen, a perceptible quantity of sodium bicarbonate and sulphate, traces of calcium, potassium, and silica. The hyperthermal waters have a temperature as high as 150° F., and have been much longer in use than the waters of the temperate group.

The general indications for sojourn at Vernet are the gouty and rheumatic arthropathies, the convalescing stages of acute rheumatism, affections of the respiratory passages—viz., various forms of rhinitis, chronic laryngitis, such as produces "clergyman's sore-throat," chronic pharyngitis, such as is often associated with the gouty tendency, leading to deafness by affection of the Eustachian tubes, and certain forms of skin disease, such as eczema, psoriasis, and acne. It will be seen that these are, as a rule, local troubles associated with general conditions, and the treatment practised at Vernet, and all the other spas, is both local and general. And here it may be pointed out that the technique of treatment throughout the Pyrenean stations is very much the same, as might have been expected seeing that the patients who attend the different centres are, in the main, suffering from the same diseases, and that the waters have substantially the same physical and chemical make-up, even as regards the presence of nitrogenous matter and the quality of radio-activity. The general line of therapeutics is the result, therefore, of considerable comparative investigation, while it would seem that the particular efficacy of any *station*, in the remedy of a particular condition, must depend at least as much upon the individual attention of the

FIG. 2.

Old Vernet.

FIG. 1.



General view of Vernet-les-Bains.

doctor, and the suitability of the environment, as upon any unusual constituent or property of the waters.

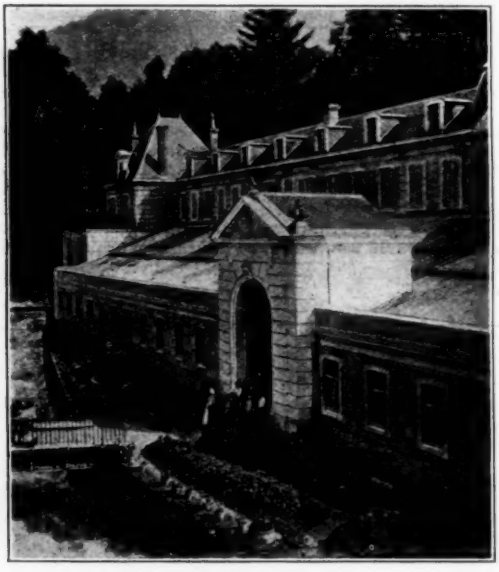
At Vernet the patient receives all sorts of douches specially adapted for joint troubles, vapour baths, massage, and under-water massage, which is sometimes a rapid way of reducing superfluous weight. The presence of "glairine" in some of the waters gives them an oiliness which helps the process of massage. All forms of machines for the treatment of rhino-pharyngo-laryngeal affections are provided, such as apparatus for dry and moist inhalations, for insufflation, nasal douching, and gargling.

There are comfortable hotels in immediate connexion with the *établissements*.

Ax-les-Thermes.

This is the well-known thermal *station* of Haute-Ariège, situated at the confluence of three Pyrenean *gaves* which descend from the Spanish side and whose valleys radiate away from the little town. The altitude is about 2200 feet, and the valleys are defined by lofty mountains clothed at their bases and for many miles up with verdure, and sheltering many lakes. The views, the expeditions, and the opportunities of sport offered by Ax have made of it a well-known tourists' centre, but Ax has been a health-resort for seven or eight centuries, as is evidenced by the fact that Louis IX. founded there his hospital

FIG. 3.



Le Teich, Ax-les-Bains.

for the treatment of those who contracted leprosy during the Crusades. Ax has an equable temperature, a low rainfall, and much natural protection from the winds, so that despite its altitude the season can be a prolonged one, lasting from May till October, while one of the *établissements*, the Teich, remains open all the year round. It cannot be pretended that Ax is well furnished with modern hotels or offers much comfortable accommodation, but as the town will be a station on the direct railway between Toulouse and Barcelona, now under construction, amenities will certainly be improved, while the patients whose physical state is good find life quite tolerable under existing conditions. But those for whom a high level of luxury is desired should not be sent to Ax.

There are four thermal *établissements*—the Couloubret, the Teich, the Breilh, and the Modèle, and the waters from a vast number of alkaline sulphur springs are assembled at them. The temperature of these ranges from 40° to 140° F., and the chemical composition is also variable within limits, a modern writer upon the *station* at Ax claiming for its waters "une vraie gamme, où chacune des *stations* sulfurées des Pyrenées pourrait reconnaître sa note propre;"

FIG. 4.

Galerie du Modèle, Ax-les-Bains.

while another author says: "tout ce qui est balnéable peut y être traité." Stress is laid at Ax upon the radio-activity of its waters; upon the value of certain springs where opalescence follows exposure to air, and where the presence of a special suspension of sulphur is postulated; and upon the presence of organic matter, "barégine," which renders the waters where it is present soapy to the touch, and is presumed to indicate a biochemical step in the production of sulphur, which is of therapeutic value. Barégine, which is the same substance as occurs in Vernet as glairine, has been termed also axine and luchonine, from localities where the nitrogenous substance is found in particular abundance. It results from the presence of various low forms of animal and vegetable life, the *sulphuraria*, and the outcome of their decomposition. The late Dr. W. R. Huggard, in his work on climatic treatment,[1] summarises a good deal of discussion on the subject by saying that the living matter consists of algæ, and that the organisms and dead matter alike reduce alkali sulphates to sulphides, thus promoting the production of sulphuretted hydrogen, due to the decomposition, at any rate in the Pyrenean waters, of sodium sulphide. The therapeutic value of the chemical interaction due to algæ has been much talked about, and the presence of green, grey, and violet slime in the neighbourhood of some of the sources has been accepted as a proof of virtue, but there is room here for some real collaboration between the chemist and the clinician.

Ax receives a large range of patients, as might be expected from its numerous springs—there are more than 60—and the diversity of their characteristics. Three main groups of patients are the same at all Pyrenean spas—namely, sufferers from the joint and neuralgic disabilities symptomatic of gout and rheumatism; the victims of chronic respiratory trouble, of chronic laryngitis, and pharyngitis; and those with certain skin diseases which appear to be controlled or cured by sulphur. Syphilitic cases are treated at Ax, as at Luchon, it being found that a mercurial course is often more efficacious if the patient is prepared by undergoing regular balneological preparation. Con-

[1] A Handbook of Climatic Treatment, part iv., chapter xxvi. Macmillan and Co.

siderable attention is also paid at Ax to chronic metritis, and one of the springs, Longchamp, has a great reputation in lithiasis. The waters are employed in all sorts of baths, and douches and vaporisers, by *humage*, and through various arrangements for inspiration of an accurately directed stream with graduated pressure. The Lajaunie-Bousquet Vaporigène is an ingenious instrument of this character which is much in use at Ax.

Thuès-les-Bains.

Between Vernet and Font Romeu, where a magnificent hotel at a height of nearly 6000 feet has become a centre alike for summer and winter sports, as well as a resort for the convalescing patients from Vernet, is the unpretentious *station* of Thuès-les-Bains. Built on a terrace overhanging the right bank of the river Tet, it has a copious supply of suphurous springs, several of them emerging from the earth at a very high temperature. The establishment is a small one, but Nature has dealt well by it, and the modest accommodation is good; if railway facilities improve, Thuès-les-Bains might have a big future.

Les Escaldes.

Though chronic laryngeal and bronchial catarrhs form a successful field of therapeutics in the Pyrenees, it has usually been considered that alkaline sulphur springs, as such, possess no special indication in phthisis. At the same time at Eaux Bonnes and Cauterets the treatment of chronic pulmonary tuberculosis has met with good returns in an average of a fair number of patients, and when Dr. Hervé opened his sanatorium at Les Escaldes five years ago he had local experience on his side, as well as the personal knowledge derived from his successful institution at Lamotte-Beuvron, Sologne. The sanatorium at Escaldes is modest, practical, and well found, and the fees are deliberately low. The results obtained have already been good; the admirable site overlooking the Cerdagne Plain provides a maximum of sunlight and fresh air, while shelter is obtained on all sides, and the dryness and equable temperature of the Oriental Pyrenees play their parts. The success obtained is encouraging the construction in the immediate future of a larger sanatorium where, without *faux luxe*, a higher note of personal comfort will prevail. The present establishment will be continued on its original lines to suit the lighter purse, while a richer clientèle is counted upon for the new sanatorium. The projected Paris–Barcelona railway will have a station in the immediate vicinity.

(To be concluded.)

THE LONDON MEDICAL EXHIBITION.

THE Twelfth London Medical Exhibition, which was held at the Central Hall, Westminster, from Oct. 2nd to 6th, was an unqualified success, both in respect of the number of visitors and the wide range of exhibits. From this last cause, and from the fact that many of the exhibiting firms represented more than one department of medicine or surgery, any satisfactory classification of the exhibits is impossible, but for convenience we have roughly divided our description under the following heads: Instruments and Appliances, Drugs and Foods, Milk, Spas and Waters, and Publishers of Medical Books.

Instruments and Appliances.

Messrs. Meyer and Phelps, Chiron House, 59–61, New Cavendish-street, London, W., showed a fine selection of modern surgical and clinical instruments, anæsthetic apparatus, thermometers, and lamps. Among these last may be mentioned some lamps in which the glare is modified by ground-glass lenses, as well as a very convenient operation lamp for illumination from above, shadow being practically eliminated. A novelty of promise shown by this firm was an improved axis-traction lever designed with the object of exerting force on the shanks of the obstetric forceps, thus ensuring a leverage corresponding more exactly with the correct axis. Greater efficiency, it is claimed, is thus obtained.—Messrs. John Bell and Croyden, Ltd. (Incorporating Messrs. Arnold and Sons), Wigmore-street, London, W., and Giltspur-street, London, E.C., had a large exhibit of high-pressure steam and vacuum sterilisers, surgical instruments and appliances, and operation and accouchement outfits, besides many pharmaceutical specialities. Particularly noticeable were the operation tables, which displayed improvements in several directions.—The Surgical Manufacturing Company, Ltd., 83 and 85, Mortimer-street, London, W., had on view some specially cheap surgical tables, and made a large display of surgical appliances and orthopædic devices; their useful "Handy" series of cabinets of sterilised dressings for emergency and other uses received much attention.—The selection of surgical instruments exhibited by Messrs. Down Bros., Ltd., 21 and 23, St. Thomas's-street, London, S.E., included a very large range of new instruments and appliances, or modifications of existing patterns and apparatus for the injection of salvarsan.

Considerable interest was manifested in the ingenious instrument supplied by the Aurorascope Co., Ltd., 18–19, Fulwood House, Fulwood-place, London, W.C. Perfect illumination of the ear, throat, nose, mouth, and teeth are given by the apparatus, which can be used for transillumination of the antrum and in retinoscopy. Being very portable, it can be used with advantage by both general practitioner and specialist. Various attachments are supplied to increase its usefulness for special purposes.—The Tintometer, Ltd., Colour Laboratories, Salisbury, showed their apparatus for the measurement of colour, their exhibit including Dr. Dudley Corbett's radiometer and an improved form of Oliver's hæmoglobinometer, with fixed standardised lamp.

X ray and electrical apparatus were well represented, one of the largest exhibits being that of X-Rays, Ltd., 11, Torrington-place, Gower-street, London. This company now represents a combination of five manufacturing firms: X-Rays, Ltd., X-Ray Tubes, Ltd., High Tension Co., F. R. Butt and Co., Ltd., and Siemens Bros. and Co., Ltd. (X Ray and Electro-Medical Supplies), and made a very fine display, which included X ray and electro-medical appliances of the latest types, radiographic sets, couches, screening stands, and tube stands. A prominent exhibit was the deep therapy apparatus of the Erlangen type.—The Cox Cavendish Electrical Co., Ltd., Great Portland-street, London, W., were responsible for an excellent display of electrical instruments of all kinds used in medicine and surgery, while the Sterling Corporation (Great Britain), Ltd., 16, Wigmore-street, London, W., were well to the front with portable high-frequency and violet ray generators.—Messrs. T. Clark and Son, 69, Marylebone-lane, London, W., demonstrated the working of a static machine with patent wave devices, and showed new methods of producing the Morton wave current.—Kodak, Ltd., Kingsway, London, W.C., showed some fine examples of X ray negatives on Eastman Dupli-Tized films, giving remarkable gradation and detail.

Messrs. H. E. Curtis and Son, Ltd., 8, Old Cavendish-street, London, W., exhibited their well-known abdominal and colotomy supports, as well as orthopædic appliances of approved merit; while on the stall of Domen Belts Co., Ltd., 456, Strand, London, W.C., were seen their popular pregnancy, accouchement, hypogastric, umbilical hernia, and floating kidney belts, together with corsets and back-supports for use where surgically indicated.—At the stall of Messrs. Lewis and Sons, 2, Westmoreland-street, New Cavendish-street, London, W., who are the actual manufacturers of orthopædic and deformity appliances, a prominent feature was made of Hessing's splints for the ambulatory treatment of fractures, and in suitable cases for the treatment of rheumatoid arthritis. Steel fracture-clips for the operative treatment of fractures were also shown.—Messrs. Hinders, Ltd., 27, Francis-street, W.C., showed a large selection of foot appliances, valgus plates, and so forth; and the Scholl Manufacturing Co., Ltd., 21–24, Giltspur-street, London, E.C., exhibited a large variety of arch-supports and similar contrivances for the foot.—Messrs. J. F. Rowley, Ltd., Roehampton House, Roehampton-lane, London, S.W., displayed artificial limbs built of light metal, the remarkable adjustment of the joints of which gives perfect poise in the case of the lower limbs and ensures efficiency in the use of the upper.

Instruments for the use of the deaf were shown by the "Acousticon," 18, Hanover-street, London, W., who supply all kinds of aids for deaf persons, electrical and non-electrical; at this stand the use of the Acousticon was demonstrated, which may be described as a portable telephone apparatus. The voice is reproduced in a remarkably perfect manner, and the instrument is made in 30 different types to suit varying forms and degrees of deafness. Other devices for the use of the deaf were shown by the Deaf Appliance Co., 58–60, Wigmore-street, London, W., and by Messrs. W. H. Pettifor, 11, Victoria-street, London, S.W.

Messrs. Chas. Hearson and Co., Regent-street, London, W., had a wide range of laboratory apparatus for bacteriological

and research work, incubators, drying ovens, agglutination baths, and a complete set of physiological apparatus required for the Second Conjoint and the London Intermediate examinations. The useful refrigerator, the Isodor, made by this firm, which was also on exhibition, was described in THE LANCET of August 5th, p. 301.—Messrs. Hawksley and Sons, 83, Wigmore-street, London, W., showed a selection of scientific physiological and acoustic instruments.—Messrs. J. P. Ashley-Waller, Audrey-place, Ely-place, London, E.C., Scialytic Lights for surgical and laboratory work, which can be used in connexion with electric or gas lamps, and do not produce a shadow, and Messrs. De Trey and Co., Ltd., Solila House, Swallow-street, W., sterilisers, stainless hypodermic needles, and the Ritter X ray unit.—Messrs. F. Davidson and Co., 29, Great Portland-street, London, W., exhibited the super-microscope, which showed tubercle bacilli and gonococci at × 1300, with a ¼ inch objective, and electro-medical appliances, pharyngoscopes, cystoscopes, and urethroscopes.—Messrs. J. W. Atha and Co., 8, Southampton-row, London, W.C., had an excellent selection of ophthalmological instruments, microscopes, speculums, lamps, and mirrors for scientific research work, and Messrs. Ogilvy and Company, 18, Bloomsbury-square, London, W.C. (British agents for E. Leitz), a fine choice of microscopes and microscopic appliances, while the De Vilbiss Company, Ltd., West Drayton, showed a complete range of medical sprays for nose and throat treatment.—The modest stall of Messrs. A. G. Sheldon and Co., 59, Weymouth-street, London, W., contained examples of surgical dressings which are packed in hermetically sealed tins according to the individual requirements of surgeons, as well as an ingenious but simple breast support which can be quickly fixed and removed. This firm supplies all kinds of surgical requisites on sale or hire, which can be obtained at any hour of the day or night.

Drugs and Foods.

Messrs. Burroughs Wellcome and Co., Snow Hill Buildings, London, E.C., had a striking display of serum and vaccine-therapy essentials, including diphtheria antitoxin. On their stall were also displayed "Ernutin," a chemically standardised preparation possessing the therapeutic efficiency of liquid extract of ergot without its undesirable constituents, "Soloid" antimony tartrate compound for the intravenous administration of sodium antimony tartrate in bilharziasis and leishmaniasis, and "Tabloid" capsule chenopodium, an anthelmintic of great value against hookworm. Organotherapy was represented by various dried gland substances, and the pituitary gland in tabloid forms.

The increasing interest in colloidal medication caused particular attention to be given to the preparations of the Crookes Laboratories (British Colloids, Ltd.), 22, Chenies street, Tottenham Court-road, London, W.C., who had a comprehensive exhibit, arsenic, aurum, ferromalt, iodine, and many others. Special attention was drawn to Collosol Argentum, Collosol Calcium, and Collosol Calcium-Lecithin.—The British Organotherapy Co., Ltd., 22, Golden-square, Regent-street, London, W., had a particularly fine display of mono- and polyglandular preparations, including Evatmine, Hæmatothyroidine, Eukinase, and Pancreatokinase, and the G. W. Carnrick Co. (American Drug Supply, Ltd.), 1, Charing Cross-road, W.C., exhibited a very wide range of glandular products and hormotones.—The Drug and Chemical Corporation, Ltd., 41, Lower Kennington-lane, S.E., showed a wide selection of Dacco! sterile solutions for subcutaneous, intramuscular, intravenous, and other injections ready for immediate use, non-toxic neo-vaccines and ordinary vaccines, as well as protein and non-specific vaccines.—Among the interesting exhibits of Messrs. W. Martindale, 10, New Cavendish-street, London, W., was a little pocket case containing tablets of strawberry vitamins for the treatment of sprue. The keeping quality of the substance is claimed to be excellent. Attention may be also called to Magisal, a soluble aspirin, as well as a peptone solution specially prepared in graded doses for immunisation in the treatment of asthma.

Messrs. Parke, Davis and Co., 50, Beak-street, Regent-street, London, W., put up a particularly fine display of standard preparations, and their vaccines of mixed anti-influenza, mixed acne, antirheumatic, mixed gonorrhœa, and others attracted much attention. These vaccines are prepared and clinically tested at St. Mary's Hospital under the direction of Sir Almroth Wright. Whooping-cough vaccines were also shown under three formulas, two for prophylaxis and one for treatment. Molevac, a tonic laxative combining liquid petroleum and malt extract with cascara, is a preparation made by this firm which deserves notice, as do also their mentholated bronchial and antacid lozenges.—Among the various drugs and chemicals shown by Chas. Zimmermann and Co., St. Mary-at-Hill, London, E.C., was Idozan (Ferrosan Co.), a neutral solution of colloidal iron containing Fe 5 per cent.; among the claims for this preparation are that it does not cause constipation, does not disturb the digestive process, does not stain the teeth, and is free from "inky taste." Incitamin, for stimulating the healing process in chronic and indolent ulcers, and digisolvin, a standardised solution of digitalis, are other products of this firm.—The Angier Chemical Co., Ltd., 86, Clerkenwell-road, London, exhibited Angier's Petroleum Emulsion with hypophosphites, each fluid ounce of which contains 33¼ per cent. of purified petroleum, and proportions of combined hypophosphites of lime and soda with glycerine. The British Dyestuffs Corporation, Ltd., 70, Spring-gardens, Manchester, are the makers of Acriflavine, which is employed in the treatment of gonorrhœa as well as in infective skin diseases; this firm exhibited on their stand many examples of chemicals used in medicine, such as benzidine, dimethyl-para-amino benzaldehyde, leuco-malachite green, phenylhydrazine hydrochloride, methylene-blue, and other microscopic stains, including light green S.F.-safranine, and toluidine-blue-eosin.—The British Alkaloids, Ltd., 104, Winchester House, London, E.C., showed examples of their trichlorophenyliodomethylsalicylic acid, a germicide, analgesic, local anæsthetic, keroplastic, non-hæmostatic, non-caustic, and non-toxic substance. Although the germicide value is stated to be ten times greater than carbolic acid the standard solution of the drug does not coagulate the protein of the human tissue.—The Anglo-American Oil Co., Albert-street, Camden Town, N.W., the makers of Nujol, a petroleum preparation of standard viscosity for use as an intestinal lubricant, showed this preparation, as well as Mistol, a solution of menthol, camphor, and eucalyptol in pure liquid paraffin, which is suitable for use in an atomiser.

The Anglo-French Drug Co., Ltd., 238a Gray's Inn-road, London, W.C., made a special feature of Dimol, an intestinal disinfectant free from toxicity, which has been introduced by Captain Ainslie Walker. Its composition and favourable clinical results were referred to in THE LANCET, April 9th, 1921, p. 758. Trepol, a tartro-bismuthate of potassium and sodium, for use in syphilis, and Diabetylin, for the treatment of diabetes mellitus without the withdrawal of carbohydrates from the dietary, were also products shown by this firm.—Messrs. C. J. Hewlett and Son, Ltd., 35–42, Charlotte-street, and 83–85, Curtain-road, London, E.C., had an attractive display of drugs, among which may be mentioned Hæmorrhaline, an improved ointment for internal and external hæmorrhoids, and Evapogens a series of medicated skin lotions that rapidly evaporate on the skin. Surgical instruments and dressings were also a feature of this firm, who called special attention to the "Nebulique" spray which produces a very fine cloud with either heavy oils, aqueous, or spirituous solutions.—Much interest was shown in the display of fine chemicals of Messrs. Menley and James, Ltd., 64, Hatton-garden, London, E.C. The salicylics were much in evidence, while among the exhibits of various preparations was Iodex, iodine in an emollient base which is quickly absorbed through the skin without stain or irritation, and liquid iodex, a colloidal solution of iodine in an oily base. In connexion with this may be mentioned an all-glass atomiser which produces a very fine spray.—Messrs. Headley and Co., Harrow-road, Leytonstone, E., exhibited many kinds of anæsthetics, and also showed surgical apparatus for producing narcosis.—The Sandoz Chemical Co., Bradford, displayed their Felamine, a cholagogue and intestinal disinfectant, which is a compound of the pure active principle of ox gall and hexamethyleutetramine, ampoules solution and tablets of Fermegin, a newly discovered principal alkaloid of Ergot (Ergotamine Stoll), and Ipecopan, a combination of emetine (alkaloid of ipecacuanha), and the total alkaloids of opium in a soluble standardised and stable form.

A wide display of foods, pharmaceutical preparations, organo-therapeutic products, surgical instruments, and hospital accessories were shown by Messrs. Allen and Hanburys, Ltd., 37, Lombard-street, E.C., and Vere-street, London, W., special attention being drawn to their diabetic flour and to their polyglandin, which contains the autacoid principles of thyroid, parathyroid, ovary, testis, and pituitary gland substances. This firm also showed a wide range of preparations from the Lister Institute.—Messrs. Oppenheimer, Son, and Co., Ltd., 179, Queen Victoria-street, London, E.C., were prominent with their Roboleine, consisting of animal fats, maltose, and diastase with natural nitrogenous and phosphoric compounds, together with the vitamins A, B, and C, and drew special attention to the palatinoid form of administering hormone products.—Messrs. Savory and Moore, Ltd., 143, New Bond-street, London, W., in addition to their well-known food for infants and invalids containing vitamins, exhibited the useful anæsthetic, Ethanesal, the underlying principle of which is ketones treated with carbon dioxide and ethylene, ether being the solvent. Datura Tatula for the relief of asthma, and Fructole of red bone marrow and glycerophosphates were other products of this firm calling for notice.

Among the special foods may be mentioned Vitma (Vitamine Cream), shown by Messrs. Callard and Co., 74, Regent-street, London, a vitalising substance which can be mixed with warm food or taken after a meal. Highly palatable, it contains fat-soluble A, water-soluble B, and water-soluble C, and its use is indicated in cases of malnutrition, rickets, anæmia, and gastro-intestinal disorders, as well as being a food for expectant and nursing mothers.—Messrs. Numol, Ltd., 3, College-street, Newcastle-on-Tyne, made a special feature of Numol, a lecithin food for malnutrition, which is composed of cream, lecithin, glycerophosphates and hypophosphites, carbohydrates and proteids; they also exhibited Soloform, a chemical compound made from phenol and iodine, used as an antiseptic agent, and Glyco-soloform for gargles and douches.—The Maltine Manufacturing Co., 9, Holborn-viaduct, London, E.C. This firm, in addition to their "Maltine," which is prepared from malted wheat, barley, and oats, digested at a temperature to conserve the high diastase activity, showed also their "Maltine" with paraffin in powder form, and their Maltoline, an alternative to cod-liver oil compounds.—Oxo, Ltd., Thames House, Queen-street-place, London, E.C., exhibited their well-known fluid beef, flavoured and unflavoured, as well as Oxo in cube form. Lemco, Fray Bentos canned meats, and Gong meat soups, oxtail, mock turtle, hare, and kidney also held a prominent place on the stall.—Virol, Ltd., 148–166, Old-street, London, E.C., showed Virol, as well as Virolax, a nutrient laxative composed of highly refined paraffin of the correct viscosity for internal administration, mixed with a special form of virol. The presence of vitamins in virol, it is claimed, gives especial value to it as a part of the diet of expectant and nursing mothers.—Messrs. F. Newbery and Sons, Ltd., 27 and 28, Charterhouse-square, London, E.C., and at Cardiff, had a display of Valentine's meat juice, and of the phospho-lecithin nerve food (Wampole). According to the formula each dessertspoonful of the latter represents sodium glycerophosphate 2 gr., calcium glycerophosphate 1 gr., potassium glycerophosphate 1 gr., strychnine glycerophosphate $\frac{1}{30}$ gr., lecithin $\frac{1}{4}$ gr., avenine $\frac{1}{10}$ gr. Magma Magnesia, antacid and laxative, was also shown by this firm, who are agents for Wm. R. Warner and Co. and Tromer and Co.'s pharmaceutical preparations.—The Charles H. Phillips Chemical Co., 14, Henrietta-street, Covent Garden, London, W.C., whose "Milk" of magnesia and phospho-muriate of quinine compound are well-known, showed also their digestible cocoa compound, a substitute for tea or coffee, and a food beverage for children and nursing women.—Messrs. Keen Robinson and Co., London and Norwich, whose patent barley is known to everyone, exhibited their Patent Groats, Waverley Oats, and their mustard for culinary or medical use. An elegant preparation of their mustard is supplied for the bath.—Bovril, Ltd., 148–166, Old-street, E.C., had an attractive exhibit of Bovril, Invalid Bovril, and Bovril Chocolate; Messrs. Cadbury Bros., Ltd., Bournville, Birmingham, showed chocolate and cocoa, and Messrs. Jardox Concentrated Products, Ltd., Crystal Palace Works, Anerley, London, S.E., their beef tea, which has a definite food value due to proteoses, and a new preparation, a combination of Jardox and milk in a powdered form.

Kolynos Incorporated, Chenies-street, London, W., who displayed their well-known dental cream, drew special attention to the fact that it contains no grit, and demonstrated the advantages of an ingenious attachment which prevents the cap of the screw tube from being misplaced.—The Pepsodent Co., 40, Holborn Viaduct, London, E.C., also showed their dentifrice, which has no soap or chalk in its composition, and is acid in reaction, though it contains no free acid. The polishing agent is finely powdered mitigated tricalcium phosphate.—Medical and toilet soaps and dentifrices were also shown by Messrs. D. and W. Gibbs, Ltd., 105, High-street, Wapping.

Jeyes' Sanitary Compounds Co., Ltd., 64, Cannon-street, London, E.C., showed various preparations of Cyllin, which take the form of an inhalant, of capsules, pastilles, dusting powder, and soap.—Messrs. Newton, Chambers, and Co., Ltd., 331, Gray's Inn-road, London, W.C., displayed the several forms in which Izal can be used both for medical and toilet purposes, and demonstrated their "Zal" disinfector, a kettle which can be used over a gas ring or spirit lamp, and by means of which the atmosphere is charged with minute particles of Izal Disinfectant Fluid.—At the stand of the Denver Chemical Manufacturing Co., London, E. 3, Antiphlogistine, an hygroscopic and antiseptic poultice composed of argillaceous mineral and glycerine with percentages of iodine, boric and salicylic acids, and the oils of peppermint, gaultheria, and eucalyptus, attracted attention. The same may be said of Thermogene, shown by the Thermogene Co., Ltd., Haywards Heath, and Victoria Embankment, London, E.C. This is a specially prepared cotton-wool used for stimulating the circulation; where indicated its superiority to poultices is apparent.—Messrs. J. C. Eno, Ltd., Pomeroy-street, S.E., and Victoria Embankment, E.C., exhibited examples of their well-known Fruit Salt. The Yomf Manufacturing Co., Ltd., 122, Greyhound-lane, Streatham, S.W. 16, demonstrated the use of Yomf, an antiseptic, detergent, and emollient agent for cleaning the hands. It is made in forms suitable for surgeons and motorists, and for use in household activities.—Messrs. C. R. Harker, Stagg, and Morgan, Ltd., Devon Wharf, Emmott-street, Mile End, London, E., demonstrated the action of Peldo, an antiseptic cream, for application to the skin before doing dirty work. It forms a soluble film which prevents grease and dirt from penetrating the pores.—The Jaeger Co., Ltd., 95, Milton-street, London, E.C., showed examples of their pure wool clothing.—The Gas Light and Coke Co., Horseferry-road, Westminster, London, S.W., had an interesting exhibit showing the applications of gas heating and lighting to health and comfort, and Messrs. Hoskins and Sewell, Ltd., Birmingham and London, a good selection of beds for use in hospitals and similar institutions.—The Noiseless Typewriter, 4, St. Paul's Churchyard, E.C. 4, were also represented, and at the exhibit of the Museum Galleries, 26, Museum-street, London, were to be seen some fine examples of reproductions of portraits of scientific celebrities.

Milk.

Glaxo Standardised Dried Milk, 56, Osnaburgh-street, London, W., received many inquiries in regard to their dried milk, particularly as a food for infants and children. Much interest was shown in the films of New Zealand scenery, with the processes of the manufacture of Glaxo, which this firm exhibited for the information of visitors.—Horlick's Malted Milk Company, Slough, Bucks, had a very attractive display of their preparation as diet for invalids, convalescents, and infants, the ease of its preparation being one of its special features. Malted Milk is also available in the form of food tablets.—Trufood, Ltd., Central Buildings, Blackfriars, London, E.C. 4, showed several forms of dry milk in powder, Trumilk (full cream, half cream, and skimmed), and "Secwa" Dried Sweet Whey for use by itself, or for making milk modifications. Messrs. Hooker and Gilby, Ltd., Buckingham, showed their malted milk, which was favourably reported upon by THE LANCET, Nov. 28th, 1914; it is very convenient to prepare, and contains the necessary proportion of proteids, carbohydrates, fat, and mineral matter to form a reliable and acceptable food.—The West Surrey Central Dairy Co., Ltd., Guildford, Surrey, had an excellent exhibit of dried milk, "Cow and Gate" brand, claiming special merit for the excellent supervision of their herds.

Messrs. Mead, Dextri-Maltose and Individual Feeding, 6, Northumberland-avenue, London, W.C. The Dextri-Maltose of this firm has been devised to supply a food which will suit the requirements of all babies, and is a combination of dextrine and maltose to supply the carbohydrates deficient in cows' milk. It is made in three forms, and in order that it may be prescribed strictly under medical advice there are no directions on the packages for the information of lay persons.

Spas and Waters.

There were represented by the British Spa Federation, whose exhibit consisted of photographs, tables of water analysis, and literature concerning accommodation and attractions for visitors to the brine baths of Droitwich, the mountain spa of Buxton, Bath with its opportunities for many kinds of balneological treatment, and Harrogate with its diversity of waters. Torquay also was represented, and other firms exhibiting may be mentioned:—the Apollinaris Co., Ltd., 4, Stratford-place, London, W.; Messrs. W. J. Burrow, Ltd., 26, London-street, Paddington, W. (Malvern Table Waters); Hydrox, Ltd., Trafalgar House, Waterloo-place, London, S.W. (pure natural soda water), and Messrs. Ingram and Royle, Ltd., Bangor Wharf, Belvedere-road, London, S.E. (Vichy waters). All these had attractive stalls.

Publishers.

Medical books were shown by Messrs. Baillière, Tindall and Cox, Henrietta-street, Covent Garden, London, W.C.; Messrs. William Heinemann (Medical Books), Ltd., 20, Bedford-street, London, W.C.; H.M. Stationery Office (Government medical publications); Messrs. H. K. Lewis and Co., 140, Gower-street, London, W.C., and by Messrs. Stanley Phillips, 48, Brondesbury-road, London, N.W. The Medical Practitioners' Union, 14, Gray's Inn-square, London, W.C., displayed the *Medical World* and literature dealing with the activities of the Medical Practitioners' Union.

MEDICAL PRAYER UNION.—A conversazione for the reorganisation of the Union will be held at the rooms of the Medical Society, 11, Chandos-street, Cavendish-square, London, W. 1, on Oct. 26th, at 8 P.M., when an address will be given by Dr. Burnett Rae on the Religious Implications of Psycho-Therapy. Those intending to be present are asked to communicate with the acting hon. sec., Dr. Tom Jays, Livingstone College, London, E. 10.

ALPINE TREATMENT OF PHTHISIS.

QUEEN ALEXANDRA SANATORIUM FUND.

THE Queen Alexandra Sanatorium in Davos was founded chiefly as a result of the labours of the late Lord Balfour of Burleigh, to secure the advantages of sanatorium treatment in an Alpine climate for persons of small means, belonging to the English-speaking nationalities, who are suffering from curable tuberculosis, but who are unable to afford the ordinary expenses of such treatment.

A daily average of 40·7 patients were in residence during 1914 and at the general meeting held on July 24th, 1914, the eminently satisfactory eleventh annual report was presented and it was decided to complete the last few unfinished items of the building, and orders were given to that effect. A few days later the blow fell. On August 2nd the male servants were called up for military service, and all except three of the female staff left in a panic. The majority of patients preferred to return home as soon as travel was possible, the remainder being transferred on the approach of winter to a hotel in Davos. On April 15th, 1915, the work of the sanatorium ceased entirely.

The sanatorium building remained empty from 1914 to 1922, an offer of its use for convalescent or sick soldiers being declined by the War Office. During these years the overhead charges continued to run and were a heavy drain on the Fund. When the time came for reopening there was no balance available for the large initial outlay and an appeal for this purpose proved quite fruitless. Last summer accordingly the building was sold to the cantons of Thurgau and St. Gallen for a popular sanatorium and the proceeds invested to serve the original object of the Fund.

Legal advice at this stage made it quite clear that the income must continue to be applied towards the treatment of patients in an Alpine climate—that is to say, in Switzerland and not in Great Britain. Sale of the building itself was not held to constitute failure of the original object. Of the possible alternatives the Council decided on a system of money grants conditional upon treatment being taken at some approved place. The total gross income of the Fund available for such grants is expected ultimately to reach £1800 a year.

The establishment approved for the purpose is, for the present, the Hotel Frei, Davos Platz, where the charge made to nominees of the Fund for board and lodging will be Fr.12.50 per day. This charge includes a separate room, central heating, and electric light. Rooms will be assigned by the local committee. A visitor's tax of 55 centimes per day will bring the hotel charges up to Fr.13.05 per day or Fr.91.35—equivalent to about £4—per week. Assistance from the Fund will be given in the following form: (*a*) A grant of Fr.38 per week towards the hotel bill (paid direct to the hotelier), (*b*) free medical attendance by a visiting physician, (*c*) free nursing by a resident nurse, (*d*) payment for medicines and bacteriological examinations ordered by the physician.

The total net cost of maintenance and treatment to an assisted patient (excluding personal laundry) is estimated not to exceed £2 10*s*. per week. Assistance is limited to the winter months and to a period of six months in all. The cost of the journey is borne by the patient; a second-class single ticket London to Davos-Platz costs about £5 15*s*. Those in receipt of assistance will be expected to stay throughout the winter season.

The medical report on which assistance is granted is filled in by the applicant's usual medical attendant, for submission to one of the examining physicians to the Fund. Dr. Arnold F. Bill and Dr. Florian Buol are the visiting physicians in Davos. Application forms and further information can be obtained from the Secretary, Queen Alexandra Sanatorium Fund, Davos-Platz, Switzerland. Copies of the forms only can also be obtained from the Hon. Secretary to the Council, Mr. D. Vesey, 3, Camp View, Wimbledon Common, London, S.W. 19.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Medical Congress and Women's Sports.

THE athletic movement in both sexes has assumed such importance in France that various medical authorities have been considering the need for controlling to a certain extent the sporting ambitions of women athletes should they be found to act deleteriously on the health of women and on the general improvement of the race. In order to discuss this subject a medical congress on Physical Education was held recently at Vichy, where 90 athletic clubs for women have been taking part in a national gymnastic fête. The meetings of the congress were successively presided over by Prof. M. Letulle and Mr. G. Vidal, Under-Secretary of State for Physical Education. Several resolutions were passed; one of them declared that girls should not engage in active sport until they have had a carefully graduated course in physical training; this course being completed, a doctor's certificate of fitness should also be required. Another resolution which was adopted urged that in all athletic clubs for people of either sex, persons 20 years of age should be compelled to carry out a course of physical training in addition to the particular game in which they were interested, and that the committee of management of the club should enlist the advisory services of a doctor. Finally, it was considered desirable that systematic training in connexion with athletics should be given to students at the various medical schools.

Public Lectures on Syphilis.

Under the auspices of the National Committee of Social Hygiene Propaganda and of Prophylactic Education, Mr. L. Queyrat has undertaken to give a series of lectures on syphilis to young women. Six hundred were present at the first lecture; at the conclusion of the second conference a deputation expressed to the lecturer their great appreciation for his tuition, and passed a resolution approving the campaign in favour of the education of the public on venereal diseases. The deputation urged the committee of the above-mentioned association to carry out a campaign against the false modesty which is responsible for so much detrimental ignorance.

Medical and Surgical Congresses.

The first meeting of the sixteenth French Congress of Medicine will take place at the Faculty of Medicine of Paris on Oct. 12th. It will be presided over by Prof. F. Widal. The thirty-first French Congress of Surgery is also to be held in Paris during this month, under the presidency of Prof. H. Hartmann. The twenty-second French Congress of Urology, which is also being held this month at the Faculty of Medicine, will be presided over by Mr. P. Noguès.

A French Appeal for the Medical Profession in Russia.

Prof. H. Hartmann, who is president of the Association for the Development of Medical Relations between France and Allied and Friendly Countries, has made an appeal in the name of the Association for the benefit of destitute medical men in Russia.

Death of Dr. L. Faisans.

Dr. L. Faisans died recently at the age of 71. For many years he has been an authority in Paris on diseases of the lungs, and has played a considerable part in the prophylaxis of tuberculosis in France.

Oct. 4th.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

SIX COUNTY BOROUGHS.

THE table below gives the principal health statistics of six county boroughs.

Town.	Estimated population (1921).	Birth-rate.	Death-rates per 1000 of population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory diseases.*	Infant mortality.	Diarrhœa, &c., under 2 years.	Maternal mortality in childbirth.
Birkenhead..	147,800	25·8	11·6	1·3	1·3	2·0	75	23	4·4
Bradford ..	291,100	19·6	13·7	1·2	1·4	2·6	109	10	5·6
Bournemouth	81,200	15·4	13·3	1·2	1·4	1·7	75	6	5·6
Preston ..	119,900	23·4	13·3	0·9	1·2	2·5	112	20	5·3
Sheffield ..	519,239	23·8	12·5	1·2	1·1	3·0	98	20	4·0
Great Yarmouth	56,300	22·2	12·9	1·4	1·2	2·1	69	18	3·4

* With influenza.

Birkenhead.

Dr. D. Morley Mathieson reports that the unemployed on the register numbered 5788 in January and 11,243 in December, 1921. The new gravitation water-supply from Alwen reservoir in North Wales, distant 42 miles, became available in August, 1921. Out of 120 samples of milk, 24 were reported to be adulterated. The small penalties inflicted are obviously insufficient to act as a deterrent. Dr. Mathieson gives figures showing that only a "small fraction" of the tuberculosis cases are notified early enough to allow of appropriate treatment being secured. Thingwall sanatorium, with 40 beds and 3 cots, was opened last November. Ten cases of small-pox were notified during the first half of the year. The maternity and child welfare scheme includes the provision of 4 beds at the Borough Hospital, of 3 beds at the Leasowe Hospital for wasting infants, and of other beds at the St. Paul's Eye Hospital, Liverpool, for ophthalmia neonatorum —here no definite number has been contracted for. A dental clinic for the school-children was opened during the year, and may soon be made available for mothers and pre-school children also. Arrangements have been made for the X ray treatment of ringworm by the Children's Hospital.

Bradford.

Dr. John J. Buchan reports that out of the 74,053 houses in the city, 9954 are still supplied by privies, and 7532 by waste-water closets. The 18 registered common lodging-houses provide accommodation for 917 persons, and the nightly average of unoccupied beds was 185. Much attention has been given to the smoke nuisance; the use of electricity for power purposes continues to increase. Of the daily milk consumed, about 8600 gallons are produced in the city and 5900 gallons imported. Of 185 samples of mixed milks 13 were found to contain tubercle bacilli. The average number of cows in milk in the city is 4664, and among these the veterinary inspector found 53 (equivalent to 1·3 per cent.) suffering from open tuberculosis, including 17 suffering from tuberculosis of the udder. All the animals suffering from tuberculosis of the udder were sold to dealers and lost sight of, only four being destroyed. Some of the animals lost sight of were yielding two and three gallons of infected milk per day. The need, says Dr. Buchan, for further powers of control of these animals is urgent. The veterinary surgeon visited six outside farms which were sending in infected milk into Bradford, and found five cows which were giving milk containing tubercle bacilli, and ascertained that at two farms suspected cows had been sold just prior to his visit. The venereal diseases scheme is supported by the medical profession, and 41 practitioners are qualified to receive free supplies of salvarsan substitutes. A chart is given showing the male and female death-rates from pulmonary tuberculosis. Both rates showed a rise during the war, but the female rate has declined very rapidly since the war, and is now only half the male rate. The work of the Municipal General Hospital has been reorganised with the help of the Local Medical Advisory Committee, and the medical superintendent, Dr. Holroyd Slater, submits complete lists of the medical and surgical cases treated. There were also admitted 401 maternity cases and 348 children under 2 years of age. A census made last year showed that 40,553 of the 74,053 houses in Bradford are of the back-to-back type. The number of houses in unhealthy areas waiting to be dealt with is 3986, of which only 724 have through ventilation. Little could be done to mitigate the grave overcrowding which is known to exist. The total new houses erected during the year was 446, of which 414 belong to the municipal scheme.

Bournemouth.

Dr. A. D. Edwards reports that the four maternity and infant welfare centres are excellently attended. Seventeen patients were admitted to the municipal maternity beds at the General Hospital, and 16 ailing infants were also admitted. Dr. Edwards has calculated his death-rates on the census population of 91,770, although the Registrar-General deducts 10,570 for visitors. In the table given above the Registrar's population estimate has been used. The beds provided for advanced cases of tuberculosis in the Firs Home are not used as much as is desirable. The public analyst reported adversely on 28 out of 127 samples of milk; and also draws attention to the adulteration of lemon-squash and lime-juice with phosphoric acid.

Preston.

Dr. F. A. Sharpe draws attention to the lack of a home nursing service. He also states that the pollution of the atmosphere by smoke from the 135 factory chimneys is severe. The Maternity and Child Welfare Committee are well supported by the Ladies' Voluntary Workers' Association, whose latest venture is the supply of dental treatment for mothers and young children. The condition of both farms and dairies is unsatisfactory as regards cleanliness. Two out of 24 mixed samples contained tubercle bacilli. The continued high incidence of puerperal fever is distressing. A gratifying feature of the work at the V.D. clinic is that the cases are coming under treatment at an earlier stage. The women (excluding prostitutes) attend more regularly than the men. The number of houses erected by the council during the year was 226, and by private enterprise 8. The council is still unable to deal with houses which are unfit for habitation, and with areas which ought to be reconstructed.

Sheffield.

Dr. Fred. E. Wynne reports that the death-rate for 1921 was the lowest ever recorded, the infant mortality rate second only to that in 1919, and the cancer death-rate the highest ever recorded. In spite of the hot weather the diarrhœa death-rate was only about two-fifths of what it was formerly, and Dr. Wynne attributes the reduction to the activities of the child welfare department, to the substitution of dried for fluid milk, to greater care with regard to flies, and to the lessened number of privy middens in the congested parts of the town. Influenza became again prevalent in December, and was fairly evenly distributed through the city. The number of privies converted was 802, and the number still requiring conversion at the end of 1921 was 10,700, including 1840 in the added area. Of 729 samples of milk 44 were reported to be adulterated, and fines amounting to £52 19*s.* were inflicted as the result of 16 prosecutions. The antenatal clinic has now become

well established. The causes of 159 stillbirths attended by midwives were investigated; 46 were probably due to asphyxia (22 were breech presentations); a high number, 30, were assigned to accident; seven were attributed to syphilis, and of the latter two mothers were so effectively treated that each has since given birth to a healthy full-time child. At the V.D. clinics the number of new cases has decreased from 2418 to 1967, but there is a satisfactory increase in the number of attendances from 28,370 to 30,366. Dr. Wynne sees no reason why persons who can afford to do so should not pay the whole or some part of the cost of their treatment. The cost in Sheffield in 1921 worked out at £4 2*s*. 9*d*. per new case. The number of new houses erected was 1165, but this only goes a small way towards meeting the deficiency of houses caused by the war. Rather less than one-third of the milk-supply is produced in the city. Among outside cows 61 tuberculous udders were found, and among city cows 21. The direct microscopical examination of the milk has been used successfully. By this means the supply of milk containing tubercle bacilli has been stopped more promptly.

Great Yarmouth.

Dr. A. N. Stevens considers that a more accurate estimate of the population is 60,000. He gives death-rates calculated on both his own and the Registrar-General's estimate, the latter being in the table given above; 36 of the 82 fatal cases of tuberculosis were unnotified at the time of death. The monthly examinations, chemical and bacteriological, of the water gave uniformly satisfactory results. The water is obtained from the Ormesby Broad and the River Bure, and after sand filtration is pumped into the mains. There are still 24 wells, many of them without doubt liable to pollution. The number of new houses erected was 60, of which 48 formed part of a municipal scheme.

Obituary.

ARMAND BERNARD, M.B. DUB., L.R.C.S. EDIN., L.M.

Dr. Armand Bernard died on Oct. 4th at the age of 77. Born in 1845, he received his early education at Waterford Grammar School and his medical training at Dublin University, of which he was B.A., graduating M.B. in 1870. He became L.R.C.S. Edin. and L.M. in 1871, and early in his professional career settled in Liverpool, where he was appointed hon. medical officer to the Southern Dispensary, surgeon to the Lock Hospital (afterwards the Royal Infirmary), and surgeon to the old Naval Volunteer Artillery, Mersey Division (H.M.S. *Eagle*). He was vice-president and secretary of the Liverpool Medical Institution. Dr. Bernard's specialty was venereal diseases, on which subject he lectured in connexion with Liverpool University and contributed numerous articles to the medical journals. He was for some years the Liverpool correspondent of THE LANCET. Dr. Bernard, who retired from practice some three years ago, was a keen churchman and a churchwarden of Liverpool Cathedral. He married Elizabeth, daughter of Mr. William McLeod, and is survived by one son (Captain C. A. Bernard, M.C., R.A.M.C.) and three daughters.

INSTITUTE OF HYGIENE.—Mr. Herbert Carson will open a series of lectures on Women's Health on Oct. 18th with a lecture on Varicose Veins: Their Cause and Prevention. Tickets (free) can be had on application to the Secretary of the Institute, 33, Devonshire-street, London, W. 1.

MEDICAL MAYOR OF BLACKBURN.—Dr. J. T. T. Ramsay has accepted the mayoralty of Blackburn for the coming year. He is chairman of the Lancashire Inebriates Home, and for the last 26 years has taken a leading part in the municipal affairs of the town.

Correspondence.

"Audi alteram partem."

"DISCUSSIONS" AT MEDICAL SOCIETIES.

To the Editor of THE LANCET.

SIR,—In the programme of one of the medical societies now before me, I notice that a "discussion" has been arranged, and that members wishing to take part are requested to send in their names to the hon. secretaries. This appears to be becoming the customary practice, but it seems to me to be one that is very detrimental to any adequate discussion. What has invariably happened at such assemblies as I have attended has been that Drs. A, B, and C give their opening papers, and Drs. D to Z, who have sent in their names, are then called upon in turn by the chairman and proceed to read out a paper that has been carefully prepared beforehand without any reference to the preceding papers. A few of the more skilful manage to throw in an extemporary reference to something that has been said before, but the necessarily strict limitation of time allotted to each speaker allows of nothing more, if the prepared piece is to be read. The official hour for closing is reached before we have got through to Dr. Z, and at the suggestion of the chairman the meeting is extended for half an hour to enable this desirable end to be attained. The meeting then closes, a few seconds being left for the opener to reply to questions and criticisms that have not been made, and no opportunity is available for those who have waited to hear the views of the authorities chosen to open the discussion before deciding whether or no they have anything of value to add.

This is, I think, a fairly accurate account of what generally happens, and I have met few people who seem satisfied with the result, for it means that the openers, who are chosen by reason of a special experience in the subject under discussion, are limited to a very inadequate time, and the remainder of the evening is often largely occupied by mere repetition. I would suggest that a better plan would be either to exclude anything but extempore discussion after the opening papers, or to allot two meetings to the subject and allow the openers to occupy the greater part of the first evening, and take the discussion on the second. This is practically the course taken at some of the general discussions at the Royal Society of Medicine, and the freedom of discussion that then obtains has a value that needs no emphasising.

I am, Sir, yours faithfully,

GORDON W. GOODHART.

Warwick-gardens, Kensington, W., Oct. 1st, 1922.

ENDOGENOUS INFLUENCES IN RICKETS.

To the Editor of THE LANCET.

SIR,—The annotation under the above title, in your issue of Sept. 30th, is an excellent check to an uncritical advocacy of the vitamin theory of rickets-causation. But I doubt if there is one argument adduced by Prof. I. Jundell which cannot be easily demolished by anyone who has followed vitamin work critically and carefully.

1. "Relative inanition can cure rickets." This does not discredit the vitamin theory. No pigeon develops polyneuritis when fasting. The vitamins are essential in exogenous metabolism, especially when the balance between protein, fat, carbohydrate, and salts is upset. Mellanby shows that too much carbohydrate leads to rickets in his experimental animals. Dr. Gladys Hartwell has shown that too much protein is fatal to the offspring of lactating rats, even though the mother thrives. Yeast extract (source of vitamin B) entirely obviates evil symptoms. "Relative inanition" brings the disturbed balance back towards the normal.

2. "Rickets does not appear in persistent vomiting, pyloric stenosis, or inadequacy of supply of human or cow's milk." The answer is as before. Further, rickets is a disease of *growth*. With Mellanby's puppies the greater the growth on a rachitic diet the worse the rickets. Relative inanition reduces growth to a level at which the vitamin A taken or already in the body is adequate.

3. "Rickets may develop on a fat rich diet." Certainly it may, or something closely simulating rickets. If you upset the calcium metabolism of the body by overfeeding on fat, it is not improbable that you will produce rickets. Fats are vitamin A carriers. The fat may so disturb calcium metabolism that no amount of vitamin which it carries can put the matter right.

4. "Cod-liver oil cannot contain vitamin A, because the cod is a carnivore and vitamins are vegetable in origin." This is a complete misunderstanding of the vitamin theory. Fats are carriers of vitamin A. The plankton (copepods or what not) upon which the cod has fed contained fats derived from diatoms, and therefore vitaminiferous. Carnivore fat may contain as much vitamin A as herbivore fat.

5. "Children fed on a milk containing vitamin A (cows were fed on green-stuff) did no better than those on milk from cows fed on linseed cake, wheat, bran, crushed oats, peas, and hay." This is not astonishing. Linseed cake, wheat, and crushed oats all contain quantities of vitamin A, and the two sets of children were getting equally good milk. No wonder they throve the same.

All Prof. Jundell adduces against the vitamin theory is known to its upholders, and falls into line with the theory. Further, the vitamin theory is simpler than the vague theory he advocates, and therefore proves a much more useful basis for experimentation, for its simplicity brings about more easily its refutation or confirmation.

I am, Sir, yours faithfully,

London, Oct. 3rd, 1922. V. H. MOTTRAM.

THE CONTROL OF TINEA CRURIS.

To the Editor of THE LANCET.

SIR,—Many years ago one of the public schools did me the honour to consult me concerning an "epidemic of boils," which recurred every autumn and winter as soon as football began and lasted until it ceased for several seasons. I was able to trace the cause and to point out the remedy. The interesting article in THE LANCET of Oct. 7th, by Dr. Norman Hallows, medical officer to Marlborough College, under the above heading (though why the skin disease should receive such an inappropriate name is not clear), seems to me to point to the same kind of conditions as existed in the case of the boils, and I will suggest what is necessary to prevent this skin disease becoming widespread. In my work at Rugby I used to have occasional cases of the disease, which was then termed eczema marginatum, or tinea marginatum; but they never occurred in numbers because they were regarded as very contagious, and so were isolated until cured, which was not a difficult matter in adolescents.

But I had an eye-opener when it attacked an adult. Then it became a calamity, lasting not days or weeks but months, exasperating the patient and humiliating the doctor. One day, in his justly wrathful indignation, the patient averred that he did not see the use of a doctor who could not cure such a simple eruption on the skin; I agreed with him. Soothing remedies, parasiticides, antiseptics, blisters, escharotics, in fact everything was tried except the actual cautery. Chagrin stared me in the face! One evening, when reading an article in one of the medical journals on some subject I do not remember, the writer, a medical officer in India, quite casually cited that the natives resorted to goa-powder (crude chrysarobin) for an eruption on their thighs called dhobie itch, which was prevalent in India, and that it was very efficacious. I saw my opportunity, telegraphed for some goa-powder, had an ointment made, and termed it unguentum araroba, and in a few days my patient was well. That remedy was subsequently used in all cases with unfailing result for many years; but owing to its deleterious effect on under-garments, of late years I prescribed instead, although not so rapid in its effect, salicylic and benzoic acids in an ointment.

If we make a careful survey of this skin disease, we see that it is of a circinate character, and in this country (in India it prevails on every part of the body) occurs most frequently on the covered parts of the body that are most profuse in perspiration under the strenuous exertion of football, and which have the adjacent surfaces of the skin in contact, such as the armpit, the inside of the upper part of the thighs, the scrotum, the groin, the cleft between the nates, and between the toes. The playing clothes, vest, "shorts," and stockings covering these parts become saturated with sweat and tainted with soil, and are a veritable breeding ground for the tinea epidermophyton, streptococci, and staphylococci. And unless they are cleansed sufficiently often it is asking for trouble. During the last eight years, it is true, East has met West and its diseases, but that is not the essential cause of the prevalence of this skin disease—it is nearer home than that, and is a question of cleanliness and common prudence. Football clothes cannot be worn with impunity without frequent washing!

If this disease is not to be broadcasted in a school the greatest need of all is the isolation of every individual case, and his lavatory, until he is cured. In this way only can the disease be brought down to occasional cases.—I am, Sir, yours faithfully,

CLEMENT DUKES, M.D., F.R.C.P. Lond.,
Consulting Physician to Rugby School and to the
Oct. 8th, 1922. Hospital of St. Cross, Rugby.

SANATORIUM BENEFIT.

To the Editor of THE LANCET.

SIR,—In the correspondence on this subject an important point has not been referred to. This is the conditional nature of recovery from pulmonary tuberculosis. It has been tacitly assumed that if such cases are discovered early, they can be cured unconditionally within three to six months. This is only true of a minority of cases. Conditional recovery is quite common; but the conditions necessary to maintain the improvement in health are but seldom provided, so that relapses take place, and eventually death after a prolonged period of incapacity.

Moreover, the time provided for systematic treatment is in most cases quite inadequate. If we treated enterica as we mostly treat pulmonary tuberculosis, we should turn the patient out of bed at the end of the third week and send him back to work in an insanitary workshop. Early notification will only be valuable when adequate arrangements are made for the treatment, and later the employment, of the tuberculous for several years under what may roughly be described as "sanatorium conditions," whether at home or in an institution. Where these conditions are not available or possible in the home, some form of colony treatment will be necessary; and this will be less expensive to the community as a whole than the present incomplete arrangements, because the patient will be at least partially self-supporting, instead of being entirely a charge on the community. Much of the after-care provided or recommended is futile, because it is only palliative instead of curative. The absence of more practical arrangements, together with the many ways in which the tuberculous individual is penalised, are amply sufficient to account for the meagre results of our present antituberculosis programme.

If the possibility of future maintenance is provided, early application for treatment will follow, and progressive diminution in the cost of treatment.

I am, Sir, yours faithfully,

Farnham, Surrey, Oct. 4th, 1922. F. R. WALTERS.

HYDROCYANIC ACID AS A BACTERICIDE.

To the Editor of THE LANCET.

SIR,—An annotation in your issue of Sept. 23rd uttered a timely warning regarding the danger attending the use of hydrocyanic acid gas as a fumigant in ship disinfection, and questioned whether it was of much value as a germicide. In order to ascertain definitely if such was the case the following simple experiments were conducted.

A broth culture of *B. typhosus* was selected as the test organism, and the solution of hydrocyanic acid (prussic acid) of the British Pharmacopœia was employed as the reagent, and an attempt was made to determine its carbolic acid coefficient. The concentrations of the acid examined would, of course, greatly exceed those which it is possible to realise under fumigation conditions on board ship.

The result of the inquiry proves (vide the accompanying test table) that prussic acid has no measurable carbolic acid coefficient. *From a bactericidal standpoint it is too weak to appreciably affect pathogenic germs.* Further, strips of sterile filter paper, moistened with the above broth culture, which were suspended in the vapour over the acid in a stoppered bottle for one hour, were found to be unaffected, the strips giving rise to vigorous cultures of *B. typhosus* when placed in sterile broth. Like many of the most virulent animal poisons, such as strychnine, aconitine, &c., prussic acid is produced by certain of the higher plants, and like them it is not injurious to the lowest plants (bacteria).

As a disinfectant its employment is therefore as fatuous as it is dangerous.

I am, Sir, yours faithfully,

WILLIAM C. REYNOLDS, D.Sc., F.I.C.

Jeyes' Laboratories, Plaistow, Oct. 2nd, 1922.

Standard Bacteriological Test (Rideal-Walker Method).

Sample.	Dilution.	Time culture exposed to action of disinfectant—minutes.				Subcultures.	
		2½	5	7½	10	Period of incubation.	Temperature.
Hydrocyanic acid B.P.	1 : 2	+	+	+	+	48 hours.	37° C.
	1 : 4	+	+	+	+		
	1 : 6	+	+	+	+		
	1 : 8	+	+	+	+		
Phenol..	1 : 105	+	+	..	..		

Temp.: 15° C. Date: 2/10/22. Strain *B. typhosus* used: Lister. Rideal-Walker coefficient: Less than 0·02.

A CASE OF PRIMARY CARCINOMA IN AN INFANT.

To the Editor of THE LANCET.

SIR,—In connexion with the article in THE LANCET of July 29th on Primary Malignant Growth of the Liver in Infants, by Mr. C. B. Dansie, the accompanying notes of a case which came under the observation of Dr. R. H. Vallance, of Lewes, and myself not long ago seem to merit publication.

The child, N. H., was born on March 15th, 1920, and died on May 13th following. The mother is a healthy woman about 36 years of age, and has two healthy children. She had another child, premature and stillborn. There is no history of either cancer or syphilis on either maternal or paternal side. Dr. Vallance attended at the birth of the child which is the subject of this letter. Labour was normal, and at birth the child appeared perfectly healthy and well developed. It was a full-term baby. In the course of the first ten days after birth the child had a slight discharge of blood from the vagina which lasted about two days, but the actual loss of blood was negligible. The mother thought that the infant was more delicate from birth than her other children, and states that it was from the first unusually drowsy and pale in colour, but there appeared to her to be no reason for calling in a doctor. The child was brought up on the breast. Death took place quite suddenly in the early morning just after a full and apparently normal breast-feed. For some weeks before death there was slight daily sickness, and according to the mother the child's skin gradually became "yellowish-white."

At the autopsy the body was poorly nourished but not emaciated. The weight was 7¼ lb. There was no external evidence of disease, and internally all the organs of the body appeared perfectly normal with the exception of the liver. The liver weighed 10½ oz., and most of the left lobe was occupied by a growth, roughly spherical in shape, measuring about 2½ inches in diameter. This growth was firm in consistence and distinctly yellow in colour. There was also a small nodule of similar growth situated in the edge of the right lobe. The stomach was dilated, and contained a considerable quantity of undigested milk. The stomach walls were thin and pale.

A portion of the growth, with some of the surrounding liver tissue, was forwarded to the Stephen Ralli Memorial Laboratory for examination. Externally the growth was homogeneous; it was surrounded by a definite zone of hæmorrhage. Sections made from the growth showed a fairly abundant fibrous stroma, with numerous imperfectly-defined acini lined with cubical cells. Small isolated groups of degenerated hepatic cells were scattered throughout. At parts there were considerable necrobiotic changes. The microscopic characters generally were those of a primary bile-duct carcinoma of the liver.

I am, Sir, yours faithfully,

H. M. GALT.

Royal Sussex County Hospital, Brighton, Oct. 4th, 1922.

THE ACTION OF VACCINES.

To the Editor of THE LANCET.

SIR,—Dr. J. Pratt-Johnson, in a paper with this title in THE LANCET of Oct. 7th, has made certain statements upon which I would like to make a few comments. He apparently maintains that the severe local reaction produced by certain vaccines is an anaphylactic phenomenon. He further states that—

"Erroneous views have been put forward in explanation of the toxicity of vaccines in these cases. These severe reactions have been stated to be due to some peculiar property, rather than to a change in the susceptibility of the patient to the vaccine, and new drastic methods of preparing vaccines have been introduced with the idea of reducing the local reaction and the so-called toxicity of the vaccine (11). The new methods consist of the breaking up of the bacterial bodies by strong chemical solutions aided by mechanical appliances and employing the suspension of the residue as a vaccine (12). The actual effect of this procedure is to weaken enormously the antigenic value of the vaccine, the titre of which is probably a hundred times less than the titre of the original bacterial suspension."

The above quotation is a somewhat scathing attack on my researches on the detoxication of vaccines, since his references to the literature—viz., Nos. 11 and 12 in this quotation—refer to my original papers on this subject. His statements just quoted are, in my opinion, unjustifiable and very misleading, as it appears to me quite erroneous to maintain that the reaction of a vaccine is due to anaphylaxis and that it depends upon the susceptibility of the patient. Patients no doubt vary in suceptibility and he may attempt to explain this variability by anaphylaxis if he likes, but there is no scientific proof that this is the true explanation, and no one even knows the nature of anaphylaxis, which is still a mystery. Apart altogether from the variation in the susceptibility of patients, it is a well-recognised fact that the toxicity or reaction-producing power of a vaccine resides in the vaccine itself, and that the toxicity of a vaccine exists as a thing apart from anaphylaxis. Dr. Pratt-Johnson might as well maintain that the toxicity of cobra venom or the irritant effect of "606" injected into the tissues was due to anaphylaxis, or that, because the susceptibility of patients to "606" is variable, therefore the reactions produced by "606" were anaphylactic in nature.

Again, I disagree entirely with his statement that the actual effect of my detoxication procedure "is to weaken enormously the antigenic value of a vaccine, the titre of which is probably at least a hundred times less than the titre of the original bacterial suspension." Is this an authoritative announcement from Dr. Pratt-Johnson, or is it mere opinion and guesswork? Such a statement, apparently unsupported by carefully

detailed scientific experiments, is misleading, and is not conducive to the progress of science. In my papers on the subject of detoxicated vaccines detailed and extensive researches are mentioned, from which it is clearly proved that the detoxication process does not destroy the antigenic nature of the vaccine. Moreover, all other statements which have been made in my papers on the subject have been supported by extensive clinical and laboratory experiments carried out in a careful and scientific manner.

Dr. Pratt-Johnson is entitled to his opinions, and as such they are of value. When, however, they are published in a manner which would lead the reader to believe that they are authoritative facts, it seems to me that he is unfair to himself, to the work which he condemns, and unfair and misleading to the medical reader of his otherwise commendable paper.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 7th, 1922. DAVID THOMSON.

AN UNUSUAL EYE INJURY.

To the Editor of THE LANCET.

SIR,—The following eye injury happening in a cotton mill may be of interest to your readers and probably more so to factory inspectors.

A girl was brought to me by the manager of a spinning mill with a "traveller" (i.e., a small brass alloy wire such as is used for binding books, &c.) embedded firmly in the eye to the depth of a quarter of an inch, one part being in the iris and one in the cornea. These "travellers" are used on a vertical bobbin on a doubling machine travelling at 9000 revolutions per minute, and this is, I understand, the first time an accident of this nature has occurred.

This patient, in my opinion, narrowly escaped being blinded, but after extraction nothing but a conjunctivitis followed, and this soon succumbed to a 5 per cent. solution of argyrol.

I am, Sir, yours faithfully,

R. KAY NISBET, L.R.C.S. Edin.

Hindley, Lancs., Oct. 6th, 1922.

EFFECT OF POSITION IN THE FAMILY ON THE HEALTH OF THE CHILD.

To the Editor of THE LANCET.

SIR,—In his article on this subject in THE LANCET of Oct. 7th Dr. R. H. Vercoe has brought forward some very interesting data, but his omission from consideration of one vitally important factor absolutely invalidates his conclusions. He has omitted to consider the mortality figures for children according to their position in the family, and has investigated only children who have passed the age of 13 years. His figures show that in the group he investigated "in incidence of disease both past and present, the worst child is definitely the eldest, while the best is definitely the eighth child and upwards." This conclusion, which he presents without qualification, would naturally be taken to apply to *all children born.* In reality it refers only to *children who have not died before the age of 13.*

The following mortality figures present the matter in a very different light:—

Arthur Geissler concluded from a study of about 26,000 births of unselected marriages among miners that the mortality of children was least in the four first born, and then increased to a very high rate. Following are Geissler's figures (marriages with only one or two children are omitted):

Children.	Percentage of deaths during first year.	Children.	Percentage of deaths during first year.
1st born	23	7th born	31
2nd ,, ...	20	8th ,, ...	33
3rd ,, ...	21	9th ,, ...	36
4th ,, ...	23	10th ,, ...	41
5th ,, ...	26	11th ,, ...	51
6th ,, ...	29	12th ,, ...	60

(Neo-Malthusianism and Race Hygiene, in "Problems in Eugenics," vol. ii., London, 1913. Dr. Alfred Ploetz, President of the Int. Soc. for Race Hygiene.)

The following table is based on the reproductive histories of 1491 married mothers who had 5617 births. Miscarriages are not included. It was made in Johnstown, Pa., U.S.A., in 1913.

Children.	Deaths per 1000.
1st and 2nd born	138·3
3rd and 4th ,, ...	143·2
5th and 6th ,, ...	177·0
7th and 8th ,, ...	181·5
9th and later ,, ...	201·1

(Infant Mortality. Emma Duke. 1915.)

Dr. Alice Hamilton, bacteriologist in the Memorial Institute for Infectious Diseases, Chicago, published the results of a study of 1600 families in the neighbourhood in 1910. The number of children live-born was compared with the number of children who reached the age of 3. A table calculated from the data of all the families shows an ascending mortality-rate.

Number in family.	Child mortality-rate.
4 children and less	118
6 ,, ,, more	267
7 ,, ,, ,, ...	280
8 ,, ,, ,, ...	291
9 ,, ,, ,, ...	303

(The Case for Birth Control. Margaret H. Sanger. New York. 1917.)

I suggest that if Dr. Vercoe would investigate the child mortality statistics among the families whose children are included in his recent investigation, his conclusions would have to be very greatly modified, if not absolutely reversed.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 9th, 1922. NORMAN HAIRE.

The Services.

NEW DIRECTOR-GENERAL OF THE INDIAN MEDICAL SERVICE.

Col. R. C. Macwatt, C.I.E., Inspector-General of Civil Hospitals in the Punjab, has been appointed successor to Maj.-Gen. Sir W. R. Edwards, C.B., C.M.G., who retires shortly from the post of Director-General of the Indian Medical Service.

ROYAL NAVAL MEDICAL SERVICE.

Temp. Surg. Lt. (D.) E. C. Bevis to be Surg. Lt. (D.) with seniority.

ROYAL ARMY MEDICAL CORPS.

Temp. Capt. V. Vesselovsky relinquishes his commn. and is granted the rank of Maj.

Capt. G. R. Grant is seconded for service with the Egyptian Army.

ARMY RESERVE OF OFFICERS.

Maj.-Gen. J. J. Russell, late R.A.M.C., and Lt.-Col. K. B. Barnett, having attained the age limit of liability to recall, cease to belong to the Res. of Off.

INDIAN MEDICAL SERVICE.

Majs. W. S. J. Shaw, H. H. Broome, D. Heron, H. C. Keates, L. Reynolds, R. A. Needham (temp. Lt.-Col.), Dwarka Prasad Goil, and J. Kirkwood to be Lt.-Cols. Capts. Phirozshah Byramji Bharucha, R. W. G. Hingston, R. C. Clifford, Latafat Husain Khan, R. de S. B. Herrick, Hargobind Lal Batra, H. Purvis (Bt. Maj.), and W. Walker to be Majs.

The King has approved the retirement of Col. T. M. Granger.

ROYAL AIR FORCE.

Capt. J. J. Boyle, Army Dental Corps, is granted a temp commn. as a Flight Lt. on attachment for four years' duty with the R.A.F.

ARMY DENTAL CORPS RESERVE.

Vacancies are announced in the Army Dental Corps, Regular Army Reserve of Officers, for a limited number of dental surgeons who held temporary commissions as dental officers in the Army during the war of 1914–19. Appointments will be made in two classes: Class I., officers who are fit for general service; Class II., all other officers. An officer will not be appointed to a higher rank than that which he was granted on relinquishment of his temporary commission nor will he be granted a commission in the Reserve of Officers if his age exceeds: For a lieutenant, Class I., 30, Class II., 40; captain, 35 and 45 respectively; and major, 40 and 45 respectively. Particulars of the conditions of service may be obtained from the Secretary (A.M.D. 1), War Office, Whitehall, S.W. 1.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Second Professional Examination in Anatomy and Physiology, held from Sept. 28th to Oct. 4th, 173 candidates presented themselves, of whom 88 were approved and 85 were rejected. The following are the names and medical schools of the successful students :—

J. D. Allen, St. Bart.'s; S. Bartlett, Liverpool; Sybil K. Batley, London Sch. Medicine; T. W. Best, Cardiff; W. T. E. Blackmore, Cardiff and London; Kathleen Blake, King's Coll.; J. Blisun, Middlesex; E. Bowen-Jones, Guy's; D. J. Brims and M. Bryer, St. Bart.'s; de L. Carey, St. Mary's; Kathleen D. Clay-Beckitt, Manchester; H. N. Collier, Guy's; L. N. R. Comty, London; Lucy M. Cranage, London Sch. Medicine; B. R. Crossley, Univ. Coll.; A. J. Daly, London; R. S. Davidson, Manchester; A. Davies and Ethel G. Davies, Cardiff; S. T. Davies, Univ. Coll.; J. V. Dockray, Cambridge; J. L. C. Doyle, St. Bart.'s; J. Y. Eccles, St. Thomas's; I. A. Evans, Cardiff; J. Evans, Guy's; A. K. J. Finch, St. Mary's; R. M. Forsayeth, London; R. A. Foucar, St. Bart.'s; B. M. Francis, Guy's; A. W. Gardner, St. Bart.'s; Edith Giles, Univ. Coll.; W. L. Gopsill, King's Coll.; R. Green, St. Bart.'s; A. H. B. Heesom, Guy's; A. R. Hill and G. E. Hughes, St. Bart.'s; D. J. C. Hutton, Middlesex; D. Imber and F. F. Imianitoff, St. Bart.'s; S. Jenkinson, King's Coll.; C. W. W. Jeremiah, Cardiff; E. C. Johnson, St. Mary's; E. J. Jones, R. Jones, and W. B. R. Jones, Cardiff; T. McD. Kellough and H. Kessel, Guy's; K. D. Kumria, Univ. Coll.; H. B. Macevoy, St. Thomas's; C. A. Martin, Madras and London; A. Mead and K. V. Mead, St. Thomas's; J. A. A. Mekelburg, Cape and Guy's; A. J. Moody, St. Bart.'s; H. Moore, Belfast and Guy's; G. C. Morris, St. Mary's; R. H. Mortis, King's Coll.; J. W. Newbold, Bombay and Univ. Coll.; E. J. Newman, London; H. A. Nicholls, St. Bart.'s; W. B. Norcott, Guy's; C. P. O'Brien, Bombay and St. Bart.'s; S. C. St. G. C. Parry, Cambridge; O. L. Prosser, Liverpool; Z. Roodyn, Middlesex; L. A. Rostant, St. Thomas's; J. A. Rushworth, Manchester; J. W. Schollum, Guy's; M. Schwartz, Cardiff; S. Q. Servantes, Middlesex; H. N. Seymour-Isaacs, St. Bart.'s; J. Shibko, Cardiff; B. L. Steele, Univ. Coll.; J. L. Thomas, Cardiff; O. C. Tobin, London; R. S. Tooth, Cambridge and St. Bart.'s; J. C. T. Tregarthen, Guy's; W. H. A. D. Tyssen, St. Mary's; H. C. van Dort, Ceylon and Middlesex; T. E. Watkins, Cardiff; J. W. Whitney, London; Mary E. G. Wilkinson, Bristol; J. H. Willis, London; Emily A. C. Wilson and N. Wilson, Univ. Coll.; S. Wray, Manchester; and H. P. Yew, Guy's.

The following candidates were approved in Materia Medica and Pharmacology :—

J. W. Alden, St. Thomas's; C. R. Alderson, Univ. Coll.; J. McL. Anderson, Durham; R. A. Antill, London; J. C. H. Baird and S. B. Benton, St. Bart.'s; W. T. E. Blackmore, Cardiff and London; A. D. Blackwell, Middlesex; Kathleen Blake, King's Coll.; E. R. Boland, Guy's; Theodora Brookes, London Sch. Medicine; M. Bryer, St. Bart.'s; H. A. Bulman, Middlesex; F. H. Chick, Birmingham; S. M. Coleman and F. W. P. Davies, St. Bart.'s; S. T. Davies, Univ. Coll.; Josephine Olga Ellen, Charing Cross; I. A. Evans, Cardiff; D. R. Grant, Guy's; H. R. Griffin, Middlesex; W. T. Griffiths, Cardiff; H. L. Groom, Univ. Coll.; H. L. Gulati, Charing Cross; A. Helmy, Cairo and King's Coll.; G. S. Hirst, Leeds; D. H. Isaac, R. Jones, and W. T. Jones, Cardiff; G. King, London; J. Leitch, Charing Cross; D. T. Lewis, Cardiff; Leonora M. K. Lines, Charing Cross; W. H. G. M. Ling, St. Mary's; D. G. Lloyd, Cardiff; E. W. D. Long, London; R. R. Mackenzie, Guy's; P. B. Mellows, St. Bart.'s; H. P. F. Modder, Guy's; G. C. Morris, St. Mary's; J. E. C. Morton, St. Bart.'s; D. H. P. Q. Mylechreest, St. Thomas's; Audrey Stella Nunn, King's Coll.; J. E. Piercy, Guy's; Winifred E. Probert, Cardiff; P. R. Rashbrook, London; J. R. Ratcliffe, Guy's; E. J. Rees, Cardiff and St. Thomas's; T. Rees, St. Bart.'s; D. V. Rice, London; R. I. Richards, Cardiff; M. V. Roberts, London; Florence E. Robinson, London Sch. Medicine; R. Sellick, St. Thomas's; Catherine E. M. Siddall, Royal Free and St. Mary's; B. C. Singh, Univ. Coll.; R. H. Smith, Manchester; L. P. Spero, St. Mary's; F. A. J. Stratford, Middlesex; R. D. Summers, London; A. G. S. Tabb, Charing Cross; F. T. Thorpe, Birmingham; H. Trafford and T. G. Tresidder, Guy's; Dorothy I. Valentine and W. A. Vickers, Liverpool; P. R. Viviers, St. Bart.'s; L. H. F. Walton, St. Thomas's; Catherine Watterson, Univ. Coll.; G. P. Williams, Cardiff; D. A. Wilson, Middlesex; F. A. Wilson, Guy's; N. Wilson, Univ. Coll.; T. J. Wilson, St. Bart.'s; and D. M. Wood, Middlesex.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates have been admitted to the Fellowship (after examination) of this Faculty: John Adam Gib Burton, M.B., Ch.B., Glasgow; and John Reid, M.D. Glasg., D.P.H., Motherwell.

THE Wellcome Physiological Research Laboratories have removed from Brockwell Hall, Herne Hill, to Langley Court, Beckenham, Kent.

HOSPITAL MEDICAL SOCIETIES. — *Charing Cross Hospital Medical Society.*—A meeting of this Society was held on Oct. 10th, when Sir Frederick Mott gave an address on Sanity and Insanity in Relation to Mental Hygiene, which we publish in full in this issue of THE LANCET. On Nov. 7th Mrs. Marie Stopes, D.Sc., will read a paper on Constructive Birth Control. On Jan. 23rd Dr. David Forsyth will speak on Early Childhood and its Influences on Adult Love Life. The lectures will be held at 5 P.M.

Guy's Hospital Pupils Physical Society.—The inaugural meeting was held on Oct. 12th, when Sir Charters Symonds gave an address on Some Guy's Surgeons and their Writings. Sir William Hale-White presiding. Clinical meetings will be held on Oct. 19th, Dec. 14th, and Feb. 22nd, and a pathological meeting on March 8th. On Nov. 2nd a combined meeting of the Physiological and Physical Societies will be held, when Mr. J. A. Currie and Mr. E. C. Warner will read the opening papers on Pain. On Nov. 9th, at 4.30 P.M., Dr. J. R. Leeson will give an address on Some Personal Memories of Lord Lister, Sir Arbuthnot Lane presiding. On Nov. 16th, after a pathological meeting at 8 P.M., Mr. W. R. Spurrell will read a paper on Pigments. On Nov. 30th a clinical and pathological meeting will be held, jointly with the Physical Society of St. Thomas's Hospital at St. Thomas's Hospital. On Jan. 11th Mr. L. G. Housden will read a paper on Cancer. On Jan. 25th a clinical and pathological meeting will be held, jointly with the Physical Society of St. Thomas's Hospital, at Guy's Hospital. On Feb. 8th Mr. E. R. Boland will address the Society on Tuberculosis. On March 22nd, at a special general meeting, the Treasurer's Prize Essay will be read. Except where otherwise stated the meetings will be held at 8 P.M.

St. Mary's Hospital Medical Society.—On Oct. 11th Prof. B. J. Collingwood, the president of the society, gave an address. The programme for the session is as follows :—Oct. 26th, Mr. D. C. L. Fitzwilliams on Wonders of the Breast; Nov. 8th, Mr. Morley Roberts on the Imagination in Medicine and Science; Nov. 22nd, Dr. E. D. Macnamara on Criminal Responsibility; Dec. 6th, Dr. Leonard Williams on the Corridors of Medicine; Jan. 10th, 1923, Sir Arbuthnot Lane on the Operative Treatment of Fractures; Jan. 24th, Prof. F. Langmead on Magic and Medicine; Feb. 7th, Sir Squire Sprigge on Science and Literature; Feb. 21st, Dr. E. H. Kettle on the Taking of Drugs; March 7th, Prof. Louise McIlroy on the Moral Influence of the Medical Profession; March 21st, Mr. W. H. Clayton-Greene (subject to be announced later). Meetings held at 8 P.M. in the library.

Westminster Hospital Guthrie Society.—The opening meeting of the session was held on Oct. 12th, when Sir James Purves-Stewart gave an address on Mount Athos. Subsequent fixtures are as follows :—Nov. 9th, clinical evening; Nov. 23rd, lecture by Dr. E. W. Gandy on General Practice: How to Procure it and Keep it; Dec. 14th, lecture by Mr. Frank Romer on Bonesetting; Jan. 18th, 1923, lecture by Sir Henry Gauvain on Modern Methods in the Conservative Treatment of Surgical Tuberculosis; Feb. 15th, clinical evening. The meetings will be held in the Board Room of the hospital at 8.15 P.M.

WESTMINSTER HOSPITAL MEDICAL SCHOOL.—The inaugural address of the winter session was delivered by Mr. G. T. Mullaby on Oct. 2nd, Mr. W. G. Spencer presiding. Mr. Mullaby pointed out that most students feel the completion of the pre-clinical stage of the curriculum as a release from bondage. This feeling of impatience with chemistry and physics, anatomy and physiology might well have for its basis a realisation that the profession of medicine is not a science but an art—that however important these sciences may be we are not in sight of the goal until we are actually brought into contact with human beings instead of with test-tubes and corpses. Students must not imagine that examination knowledge of medicine and surgery, pathology and pharmacology suffices to constitute a good doctor, for it is only a foundation upon which to build. Medical knowledge is fragmentary and uncertain; lawyers may solve their problems by quoting this or that judgment of the House of Lords, but medical men must each one solve his problems as best he can. They can get help from one another, but not finality. The student in every case must decide how far and in what direction he must modify the teaching he received as being generally applicable; that is the art of medicine, which cannot be taught in a medical school. All that the student can be taught is the way to learn the art himself. The patients never fail to realise that their illnesses are different from other illnesses, and they are right. The taking of case notes is a valuable feature of the student's work, as an exercise in patience, in tact, and in sifting the relevant from the irrelevant. A pitfall in the student's path is to look on or speak of patients not as sick men but as interesting specimens of this or that disease, much as a man might speak of his furniture. At the Westminster Hospital patients kept their names, instead of becoming numbers; this practice

enabled them to keep, and to be realised, as individualities. The growth of public opinion in favour of replacing individual effort by the combined effort of the community has not passed medicine by. The demand for a national medical service, although less loud than it was a year or two ago, is not dead. Without entering into the arguments for and against such a service, one of the great dangers in any such change is that as the independent doctor becomes merged into an official, so will the individual patient become merely a statistical unit; and the art of medicine cannot be practised upon units.

MEDICAL SOCIETY OF LONDON.—The programme for the first half of the session has now been issued. On Oct. 16th the presidential address, on Certain Developments in Medicine, will be delivered by Lord Dawson of Penn, to be followed by a discussion. On Oct. 30th a clinical evening will be held, when an exhibition of cases and radiograms illustrating Tumours of the Abdomen will be shown. On Nov. 13th a discussion on Pernicious Anæmia will be introduced by Dr. P. N. Panton, followed by Dr. Arthur Ellis, Dr. A. F. Hurst, Dr. A. Maitland-Jones, Dr. C. Price-Jones, Dr. J. J. Conybeare, and others. On Nov. 27th a discussion on Blood Transfusion in Civil Practice will be introduced by Mr. Geoffrey Keynes, followed by Mr. Gordon Taylor, Sir Thomas Horder, Mr. Kenneth Walker, Dr. Alexander Fleming, Mr. Eardley Holland, and others. On Dec. 11th a discussion on the Clinical, Pathological, and Radiological Aspects of Infections of the Teeth and Gums will be introduced by Sir William Willcox, followed by Mr. Maxwell Stephens, Prof. J. McIntosh, Dr. J. H. Woodroffe, Dr. Geoffrey Evans, and others. These meetings will be held at 8.30 P.M., at 11, Chandos-street, Cavendish-square, London, W. 1.

The Lettsomian Lectures on Carcinoma of the Rectum will be delivered in February and March, 1923, by Mr. William Ernest Miles. The annual oration will be delivered in May, 1923, by Dr. J. Walter Carr.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At the first meeting of the session, held on Oct. 6th, Sir Lenthal Cheatle, the retiring President, handed over the insignia of office to Dr. A. G. Wells, who then presented him with the Keetley Medal in memory of his year of office. The new President in his opening address said that as a general practitioner he proposed to indicate the changes which he had noticed during the last 42 years. The life of the general practitioner with a large practice was a fairly hard one. He had to be constantly on duty; ready to deal with both surgical and medical emergencies and with the varying moods of his patients. He should have what is known as a good constitution to start with, he should be an optimist, he should have a good working knowledge of his profession, and above all he should have the power of convincing his patients that he knows best what is good for them. Dr. Wells looked forward to the time when the hospitals and infirmaries of London would be linked together. He advised the newly qualified practitioner to grasp the opportunity provided by a position under the Poor-law.

CHARING CROSS HOSPITAL ANNUAL DINNER.—This dinner of past and present students was held at Oddenino's Imperial Restaurant, London, W., on Oct. 3rd. Lord Burnham presiding. After the loyal toast had been honoured, Sir Herbert Waterhouse proposed the toast of "The Hospital and Medical School," for which he saw good prospects in the future. The greatest need of the hospital—a maternity ward—was well on the way to becoming established. During the past year the hospital had lost the services of Mr. Stephen Fenwick, whose retirement at an early age was due to continued ill-health. The vacancy thus created was now filled by a former student of the hospital, Mr. C. Jennings Marshall. Dr. W. W. Topley also had left the hospital to take up an appointment in Manchester. During the past year it had been possible to purchase the freehold of the medical school. Dr. W. J. Fenton, dean of the medical school, referred to the good impression made by the women students, and added that it was the intention of the authorities to continue to admit women students to the hospital and the medical school. In proposing health of past and present students, Dr. W. C. Bosanquet referred to the arduous and prolonged curriculum through which the modern medical student had to pass, and contrasted present conditions with those of his own student days when the course was much shorter. In the absence of Mr. Fenwick, Dr. S. N. Scott (Plymouth) replied for past students, and entered a plea that students on the point of qualifying should be taught something of the conditions of panel practice, and warned to resist any further extension of the panel system or State medicine. Mr. H. C. Clifford-Smith replied for present students. The health of "The Guests" was proposed by Dr. W. Forsyth. Principal Barker of King's College and Dr. S. Ingleby Oddie replied. Mr. George Verity, who proposed the health of "The Chairman," spoke of the indebtedness of the hospital to Lord Burnham. Viscount Burnham, in his reply, said that as a near neighbour of the hospital, for Fleet-street was not far from Charing Cross, he did not agree with those who held that the work of Charing Cross Hospital might, with advantage, have been split amongst half a dozen other hospitals within a radius of a few miles. The unique position of the hospital at Charing Cross, where it was seen by every visitor, and in particular every American visitor to London, was in itself a constant reminder of the great public work done by metropolitan hospitals.

Dr. Godfrey Lowe has been appointed Sheriff of Lincoln for the ensuing year.

HUNTERIAN SOCIETY.—The first dinner meeting will be held at Simpson's Restaurant, Cheapside, London, E.C., on Oct. 16th at 7.30 P.M. The dinner will be followed by a presidential address on the Breakdowns of Middle Life, by Dr. Fortescue Fox, and a discourse on the Treatment of Dyspepsia in Necessitous Patients, by Dr. Ernest Young.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL.—Mr. Chichele Nourse will deliver the opening lecture of the winter session of the Central London Throat, Nose and Ear Hospital, Gray's Inn-road, at 4 P.M. on Oct. 26th, the subject being Foundations of Otology: the Work of Flourens.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—The School of Pharmacy of this Society was opened for the winter session on Oct. 4th, when Mr. H. J. Waring, Vice-Chancellor of the University of London, delivered an inaugural address. He said that pharmacy did not occupy such a high position among technical vocations as it should do, and intimated that any scheme put forward for the recognition of a degree in pharmaceutical chemistry would receive consideration from the University of London. Pharmacological preparations of the older type were now playing a smaller part in therapeutics, having been largely replaced by organic substances. The British Pharmacopœia, according to Mr. Waring, could be considerably reduced in bulk without loss to the general community, and with gain to the pharmacist and the practising physician.

SECOND INTERNATIONAL MILITARY MEDICAL AND CHEMICAL MEETING.—The first of these conferences took place at Brussels in July, 1921, when representatives of 19 nations assembled. The second meeting will be held at Rome from May 28th to June 2nd, 1923. The following subjects will be discussed:—1. Evacuation: (*a*) General principles of evacuation from armies in the field; (*b*) organisation of evacuation, bearing in mind the limitations imposed by the condition of the patients; (*c*) adaption of medical and surgical methods of treatment in accordance with the varying conditions imposed by the necessity of evacuation. 2. Coöperation between the competent civil and military authorities in questions of social hygiene, physical training, and prevention of disease: statistical considerations of disease—tuberculosis, venereal disease, alcoholism, mental defects; the sorting out of cases and measures of prevention. 3. A critical study of the methods of disinfection and disinfestation in both peace and war. 4. The treatment of penetrating wounds of the chest and of their sequelæ. 5. Chemical laboratories in the field, their rôle, and the methods employed. The subscription for membership is 25 francs. The official organ of the meeting is the *Giornale di Medicina Militare*, to the director of which, at Rome, all communications should be addressed.

DONATIONS AND BEQUESTS—The late Mr. Daniel Clark, of Roma, Cheltenham, left by will £5000 to the Leeds General Infirmary, £5000 to the Cheltenham General Hospital, £2000 to the Bath Hospital, Harrogate, £1000 to Dr. Barnardo's Homes, and £1000 to St. Dunstan's Hostel: the residue of the testator's property, which will exceed £30,000, will be divided between the following London hospitals: St. Bartholomew's, Guy's, London, St. Thomas's, St. George's, King's College, University College, Charing Cross, St. Mary's, Paddington, and the Middlesex.—By the will of the late Mr. James Rogers, of Cefngwyn, Penmaenmawr, Carnarvon, the testator left £1000 to the Birmingham and Midland Hospital for Sick Children for a bed "in memory of James and Sarah Rogers"; and £100 to the General Hospital, Birmingham.—The late Mrs. Fanny Hall, of Bayswater, bequeathed £1000 to St. Dunstan's Hostel for the Blind; £500 to the London Hospital; and £500 to St. Mary's Hospital.—By will the late Mr. Tom Boatman, of Wimbledon, left, contingent on the death of his wife, 500 guineas to the Royal Hospital for Incurables for a ward to be named after him.—The late Mr. J. Graham, a Perthshire farmer, has left by will a sum of about £60,000 to the Perth County and City Royal Infirmary.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Oct. 17th.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for Election to the Fellowship.

PATHOLOGY: at 8.30 P.M.
Presidential Address:
Dr. J. C. G. Ledingham: Natural Resistance to Infection and the Study of Normal Defence Mechanisms.
Short Paper:
Dr. C. C. Okell: Notes on Hæmolysins and Hæmagglutinins.
Paper:
Dr. Passey and Dr. Ryle: Spirochætosis Icterohæmorrhagica in Surrey.
Demonstrations will be given.

Thursday, Oct. 19th.

DERMATOLOGY: at 5 P.M. (Cases at 4.30 P.M.)
Cases will be shown by:—
Dr. Savatard:—(1) Bowen's Carcinoma, (2) Early Epithelioma, (3) Epithelioma Adenoides Cysticum.
Dr. Stannus (introduced): ? Pellagra.
Dr. Haldin Davis: Angiokeratoma.
Dr. Sequeira: (1) Xanthoma Diabeticorum, (2) Bowen's Carcinoma.
Dr. O'Donovan: Carcinoma Multiple Squamous-celled.
Dr. Barber: Xanthoma Diabeticorum.
Special Evening Meeting at 8.30 P.M.
Paper:
Dr. L. C. A. Savatard: Benign Epithelioma of the Skin.
To be followed by a Discussion. Those wishing to take part are asked to send their names to the Hon. Secretaries as soon as possible.

PATHOLOGY AND SURGERY: Members of these Sections are specially invited to attend the above meeting.

Friday, Oct. 20th.

OTOLOGY: at 5 P.M. (Cases at 4.15 P.M.)
Cases will be shown.
A Specimen will be exhibited by Mr. E. D. D. Davis.
Paper:
Dr. Albert A. Gray: Some Cases of Otosclerosis with Unusual Symptoms.
Demonstration:
Mr. Somerville Hastings and Major Tucker: An Attempt to Standardise Tests for Hearing.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Oct. 16th.—8 P.M., General Meeting: Installation of the new President. 8.30 P.M., Lord Dawson of Penn: Presidential Address on Certain Developments in Medicine, to be followed by a discussion.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

THURSDAY, Oct. 19th.—8.15 P.M., Dr. R. Row (of Bombay): Rat-bite Fever, the Rôle of Phlebotomus in Leishmaniasis and a Case for Diagnosis. The Meeting will be preceded by a Demonstration.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

WEDNESDAY, Oct. 18th.—4 P.M., Dr. Arnold Chaplin: Harveian Oration.

FELLOWSHIP OF MEDICINE POST-GRADUATE LECTURES, 1, Wimpole-street, W.

TUESDAY, Oct. 17th.—5 P.M., Mr. Philip Franklin: The Clinical Aspects of Tonsils and Adenoids.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, Oct. 16th.—10.30 A.M., Mr. Maingot: Surgical Pathology. 12.15 P.M., Dr. Burnford: Pathological Demonstration. 4.30 P.M., Dr. Saunders: Scurvy in Children and its Treatment.
TUESDAY.—10 A.M., Dr. Paterson: Demonstration of Medical Cases. 12 noon, Mr. Sinclair: Surgical Diseases of Abdomen. 4.30 P.M., Mr. Tyrrell Gray: Surgical Aspects of Dyspepsia.
WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12 noon, Mr. Simmonds: Demonstration of Fractures. 4.30 P.M., Dr. Burnford: *B. Coli* Infections.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 12 noon, Dr. Scott Pinchin: Disease of the Heart. 4.30 P.M., Mr. Baldwin: Some Points in Rectal Surgery.
FRIDAY.—11 A.M., Dr. McDougal: Electrical Department. 12.15 P.M., Dr. Burnford: Applied Pathology. 4.30 P.M., Mr. Simson: Modern Developments in the Management of Labour.
SATURDAY.—9 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children.
Daily 10 A.M. to 6 P.M., Saturdays 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: OCT. 9TH–DEC. 6TH, 1922.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, Oct. 16th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Clinical Lecture: Dr. Aldren Turner.
TUESDAY, Oct. 17th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Lecture:—Involuntary Movements: Dr. Risien Russell.
THURSDAY, Oct. 19th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Lecture:—Disorders of the Sympathetic Nervous System: Dr. Kinnier Wilson.
FRIDAY, Oct. 20th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Lecture:—Cerebral Complications of Disease of the Ear: Mr. Scott.
Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.
Lectures on NEURO-OPHTHALMOLOGY (in the Lecture Theatre). WEDNESDAY, Oct. 18th.—3.30 P.M., Papilloedema: Mr. Leslie Paton.
N.B.—Not more than fourteen Candidates can attend this Course.
Lectures on NEURO-PATHOLOGY. MONDAY, Oct. 16th.—12 noon, Cerebro-Spinal Fluid. I., Physiology. THURSDAY, Oct. 19th.—12 noon, Cerebro-Spinal Fluid. II., Pathology. Dr. J. Godwin Greenfield.
The fee for the whole Course, including Mr. Paton's Lectures, is £14 14*s.*; but these Lectures may be taken separately for a fee of £6 6*s.* Any part of the Course may be taken separately at a special fee. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.
C. M. HINDS HOWELL, Dean of Medical School.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.

THURSDAY, Oct. 26th.—4 P.M., Mr. Chichele Nourse: Foundations of Otology—the Work of Flourens.

LONDON LOCK HOSPITAL, 91, Dean-street, W., and 283, Harrow-road, W.

MONDAY, Oct. 16th.—5 P.M. (Dean-street), Mr. Charles Gibbs: Treatment of Syphilis.
TUESDAY.—2.30 P.M. (Dean-street), Mr. McDonagh: Syphilis of the Nervous System, its Diagnosis and Treatment.
WEDNESDAY.—3 P.M. (Harrow-road), Mr. Ernest Lane: Treatment of Gonorrhœa in Women.
THURSDAY.—2.30 P.M. (Dean-street), Mr. W. Victor Corbett: Practical Demonstration of Tests used in Syphilis and Gonorrhœa. 4.30 P.M., Mr. Swift Joly: Treatment of Chronic Gonorrhœa in the Male.
FRIDAY.—4 P.M. (Dean-street), Mr. Johnston Abraham: Late Sequelæ of Gonorrhœa in the Female.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

THURSDAY, Oct. 19th.—5 P.M., Dr. W. Griffith: The Diagnosis of Skin Diseases.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Oct. 17th.—4.15 P.M., Dr. E. M. Brockbank: The Treatment of Acute Pneumonia.
FRIDAY.—4.15 P.M., Dr. E. S. Reynolds: Functional Nervous Disorders.

MANCHESTER FRENCH HOSPITAL, 24, Acomb-street, Whitworth Park, Manchester.

THURSDAY, Oct. 19th.—4.30 P.M., Dr. N. C. Haring: Tuberculosis. Illustrated by typical cases in various stages of the disease.

BRITISH MEDICAL ASSOCIATION: NORTH OF ENGLAND BRANCH.

Scientific Demonstrations.

THURSDAY, Oct. 19th (at Durham County Hospital, Durham City), 2.30 to 3 P.M., Mr. Hamilton Drummond: Some Common Diseases of the Colon and their Treatment. 3 to 3.30 P.M., Dr. E. Farquhar Murray: Borderline Gynæcology. 3.30 to 4 P.M., Dr. F. J. Nattrass: Meningitis. 4 to 4.15 P.M., Tea. 4.15 to 5.15 P.M., Demonstrations of Cases by the Honorary Staff of Durham County Hospital.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE.

Post-graduate Lectures and Demonstrations.

TUESDAY, Oct. 17th.—3 P.M., Prof. Mellanby: Shock.
FRIDAY.—3 P.M. (at the Royal Infirmary), Dr. Barnes: Demonstration of Stomach Cases. 4 P.M., Mr. Finch: Surgical Treatment of Indigestion.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

Course of Lectures on Maternity, Child Welfare, and School Hygiene.
WEDNESDAY, Oct. 18th.—4 P.M., Prof. L. McIlroy: The Influence of Antenatal Care upon Infant Mortality.

Appointments.

BENSON, W. A., L.R.C.P. & S. Irel., has been appointed Assistant Medical Officer, Knowle Mental Hospital, Fareham, Hants.

GABRIEL, W. B., M.S. Lond., F.R.C.S. Eng., Surgical Registrar to the Middlesex Hospital.

GOODSON, BESSIE, M.B., Ch.B. Leeds, Medical Officer to the Swansea Corporation.

HILLIER, T. L., M.B., B.Ch. Cantab., L.R.C.P. Lond., M.R.C.S., House Surgeon, Princess Alice Hospital, Eastbourne.

HODGSON, G. G., L.R.C.P. Lond., M.R.C.S., acting Assistant Medical Officer to the Ipswich Borough Mental Hospital.

KNOWLES, MARION, M.B., Ch.B. Leeds, Medical Officer for Maternity and Child Welfare, County Borough of Derby.

MOON, H. J., L.R.C.P. Lond., M.R.C.S., Certifying Surgeon under the Factory and Workshop Acts for Patterdale.

RICHARDS, N. O., M.B., B.S. Lond., Assistant Physician to the Infants Hospital, Vincent-square, Westminster.

ROSS, J. A., M.B., Ch.B. Edin., a Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 3.

SHIRES, B., M.B., Ch.B. Edin., Radiologist to the Infants Hospital, Vincent-square, Westminster.

Vacancies.

For further information refer to the advertisement columns.

Birmingham and Midland Ear and Throat Hospital, Edmund-street.—Jun. H.S. £200.

Birmingham University.—Lecturer in Physiological Dept. £300.

Bournemouth, Royal National Sanatorium for Consumption, &c.—R.M.O. and Clin. Tub. O. £570.

Bramshott, Hants, King George's Sanatorium for Sailors.—Med. Supt. £600.

Bristol Royal Infirmary.—Hon. Ophth. S. and Med. and Obstet. Reg.

Cardiff, King Edward VII. Hospital.—Ophth. H.S. £150.

City Dispensary, College-street, Dowgate Hill, E.C.—Deputy M.O. 50 guineas.

City of London Hospital for Diseases of Chest, Victoria Park, E.—H.P. £125.

Derby, Derbyshire Royal Infirmary.—Ophth. H.S., Asst. H.S., and Cas. O. Each £200.

East London Hospital for Children, &c., Shadwell, E.—H.S. and H.P. Each £125. Res. M.O. £200.

East Suffolk County.—Asst. Tub. O.'s. £500.

Essex County Council.—M.O.H., &c. £750.

Exeter City Mental Hospital.—Med. Supt. £700.

Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—S. and P. to Out-patients.

Hong-Kong University.—Prof. of Med. £800.

Hospital for Consumption and Diseases of Chest, Brompton, S.W.—H.P.

Hull and Goole Port Sanitary Authority.—Asst. M.O.H. £750.

Inverness County Council.—Asst. M.O., &c. £500.

Leeds Maternity Hospital.—University Tutor in Obstetrics and Res. M.O. £300.

Leeds, Ministry of Pensions Hospital, Becketts-park.—Jun. M.O. £350.

Leicester Royal Infirmary.—H.S. £200.

London Homœopathic Hospital, Great Ormond-street, W.C.—S.

London Hospital, Whitechapel, E.—Asst. S.

Manchester Royal Infirmary.—H.S. and H.P. Each £100. Also Second Med. Reg. £150.

Margate, Royal Sea Bathing Hospital,—S. £200.

Metropolitan Hospital, Kingsland-road, E.—Cas. O. and Res. Anæsth. £120. Also Asst. H.P., Sen. H.P., and Asst. H.S.

Miller General Hospital for South-East London, Greenwich-road, S.E.—Res. Cas. O. £200.

Monmouthshire Education Committee.—Two Asst. M.O.'s. Each £500.

Napsbury Mental Hospital.—Jun. A.M.O. £546 14s.

Northampton, St. Andrew's Hospital for Mental Diseases.—Second Asst. M.O. £100.

Norwich, Norfolk and Norwich Hospital.—Asst. Path. £300.

Plymouth, South Devon and East Cornwall Hospital.—H.S. £200.

Prince of Wales's General Hospital, Tottenham, N.—Hon. Anæsth. £20.

Royal Chest Hospital, City-road, E.C.—P.

Royal Ear Hospital, Dean-street, Soho, W.—Hon. Res. H.S.

Royal Free Hospital, Gray's Inn-road, W.C.—Clin. Asst.

Royal Northern Hospital, Holloway-road, N.—H.P. and H.S.'s. Each £150. Also Cas. O. £200.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon. P.

Salford Union Infirmary, Hope, Pendleton, nr. Manchester.—Second Res. Asst. M.O. £350.

University College Hospital, Gower-street, W.C.—Second Clin. Asst. in Child Welfare Dept.

Wakefield, Clayton Hospital.—H.S. £200.

West End Hospital for Nervous Diseases, Welbeck-street, W.—Radiologist.

Births, Marriages, and Deaths.

BIRTHS.

DUNCAN.—On Sept. 29th, at North View, Liverpool, the wife of Dr. Thomas Duncan, M.C., of a son.

SARRA.—On Oct. 2nd, at Coverack, Western Elms-avenue, Reading, the wife of E. R. Sarra, M.A. Camb., M.R.C.S. Eng., L.R.C.P. Lond., of a son.

WALL.—On Oct. 4th, at Cavendish-place, W., the wife of Dr. Cecil Wall, of a daughter.

MARRIAGES.

SIBLEY—GARRARD.—On Oct. 5th, at Brompton Oratory, Lacon Carden Sibley, M.R.C.S., L.R.C.P., to Hester Bain, elder daughter of Captain and Mrs. Lindsay Garrard, of Hogarth-road, S.W.

TALBOT—WORTLEY.—On Sept. 14th, at Cockington Church, Torquay, Dr. John R. Talbot, of Dublin, to Norah, only daughter of the late Mr. and Mrs. H. B. Wortley, Rock Ferry, Cheshire.

DEATHS.

RAILTON.—On Oct. 4th, at Coppice Hollow, Buxton, Thomas Carleton Railton, M.D. Lond., M.R.C.P., F.R.C.S., in his 79th year.

ROE.—On Oct. 8th, at Shackenhurst, Bournemouth, Dept. Surg.-Gen. William Carden Roe.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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POSITION PAGES.—Terms on application.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN.—The Chesterfield Lectures, founded in 1895 to promote the study of dermatology, are being held at this hospital, free to medical practitioners, on Thursdays at 5 P.M. The next lecture will be delivered on Oct. 19th by Dr. W. Griffith on the Diagnosis of Skin Diseases.

AN "Old English Bazaar" is being organised by the staff of the Central Telegraph Office in aid of some of the most important of the great London hospitals. It will take place at Memorial Hall, Farringdon-street, London, E.C., on Nov. 15th to 17th. Inquiries, gifts, or other offers of coöperation should be sent to the Chief Supervisors, Room 58, Central Telegraph Office, London, E.C. 1.

Notes, Short Comments, and Answers to Correspondents.

HEATING AND VENTILATION OF PASSENGER SHIPS.*

BY J. L. MUSGRAVE.

IN the last 20 years or so the large steamship companies have indicated a most progressive spirit in their efforts to improve the amenities of ocean travel; not only have ships increased in size and speed, but the introduction of improved means of propulsion (geared turbines, oil-fired boilers, &c.) has permitted the allocation of larger spaces for the accommodation of passengers and has facilitated an introduction of light and air to various parts of the interior which, a few years ago, would have been considered impracticable. Many first-class ships compare most favourably as regards interior decoration with the finest buildings, and in fact almost everything that can be done is done to make the passenger forget that he or she is at sea.

It has to be admitted, however, that methods of heating and ventilation, with few exceptions, have not progressed at the same rate as the other great improvements. At best, the heating and ventilating arrangements on passenger ships do not compare at all favourably with the average important building, in which fresh air of requisite humidity is distributed at various temperatures, vitiated air is extracted, interchange of from 1500 to 2000 cubic feet of air per person is frequently provided, and devices for cooling the building in hot weather are sometimes fitted. Ships are frequently likened to "floating hotels," but a more correct simile in relation to some of the modern leviathans would be "floating towns," with a population of 2000–3000 or more confined within their limits for periods of one week and upwards. In considering the necessities of air-supply to such large numbers of people various prevailing conditions have to be taken into account. Ships plying across the North Atlantic between Europe and America have to cope with the heat of the American summer and the intense cold of the North Atlantic winter, where zero temperature Fahrenheit is occasionally met with; rapid and considerable variations of temperature frequently take place during a single voyage. Passenger ships journeying to South Africa, South America, Australia, and New Zealand approach or leave home ports during winter, and, in the case of those visiting South America or New Zealand, in the extreme southerly regions, arrive there during the cold season; but the greater part of the voyage takes place in warm or torrid zones. In spite of the huge sums that are spent in the construction and equipment of the luxurious ocean liners of the present day, heating and ventilation have not, except in a few instances, received the attention they deserve from the owner, designer, or builder. This paper will have achieved its object if some faint echo of it reaches the owners' ears and awakens their interest in the possibility of further improvement in the earning power of their ships by the application of more scientific methods to heating and ventilation.

There is a vast field for investigation and enterprise in this direction; with the assistance of the heating and ventilating engineer those responsible for the design and construction of ships would materially improve the amenities of their ships by increasing the comfort of passengers and crew, and thereby add to the number of the former and the efficiency of the latter. Any slight additional expenditure that might be entailed would prove a sound commercial investment.

Difficulties of the Problem.

The difficulties are many and intricate, but hearty—and early—coöperation between those responsible for the design and construction of the ship and the heating and ventilating engineer would speedily overcome them. The architect of an important building consults the heating and ventilating engineer when he begins designing, and embodies space for the accommodation of the plant and ways for ducts, pipes, &c., as well as the approximate positions of his ventilating inlet and extracts. These, possibly, have to be modified from time to time as the work proceeds, but the general principles having been adopted the ultimate success of the scheme is assured. The naval architect is confronted with a similar but probably much more complicated problem. The spaces that may be allotted to various services are much more restricted; permissible weight has to be considered, and the requirements of the various Governments and shipping authorities have to be met. Beyond certain general outlines, the actual working out of a heating and ventilating scheme, more often than not, is left to the shipbuilder to develop, more or less as the work proceeds. As every inch of available space is claimed for the electrician or the plumber, for automatic door-operating gears, fire hydrants, and numerous other necessary devices, the path of least resistance is usually taken, and the ventilating ducts are curtailed. Sometimes this cannot be avoided, but with a live and keen heating and ventilating engineer on the job, determined to provide the guaranteed results for which he had been made responsible, a way round will generally be found.

One frequent cause of mediocre results is the divided responsibility. Usually the ship specification includes provisional sums to be expended on the purchase of fans, motors, heaters, &c., the duct work being left to the shipbuilder to include in his general quotation for the hull, no definite scheme being first laid down. The spaces to be ventilated are mentioned, and by "averaging" costs of similar work on previous ships, a price of some sort is included in the tender. As the work proceeds, fans, motors, and heaters are purchased to fulfil certain specified duties; usually they are all standardised, irrespective of the various functions they have to perform, and in only rare instances has the volume to be dealt with, or the resistance, been scientifically calculated. The manufacturer of the apparatus has rarely any voice in the run, area, or arrangement of the trunks in connexion with which his apparatus has to operate. For convenience in passing through the restricted spaces, if for no other reason, the duct manufacturer will curtail his work to the least possible area. Furthermore, the high air speeds usually entail a high speed of emission through the inlet to the cabins or spaces, causing unnecessary draughts which would not be endured in other circumstances, and frequently, to pacify the passengers, the ventilating system to some parts has to be run at reduced speed; thus the full benefit of the expensive plant is not obtained.

The Personal Factor.

Most of the shipping companies and the shipbuilders employ most capable and experienced men on the heating and ventilating systems, but frequently they have not the status to enforce their views in the event of a conflict with other sections for space. By the omission of a duct, space is provided for so many other services that the ventilating engineer is overwhelmed by numbers, and unless he becomes reconciled to giving way to the clamours of the other departments, to him life is not worth living. It will probably have been noticed by many that heating and ventilating engineers are amongst the most humble and least aggressive of mankind. It may be that the constant effort to make their work unobtrusive in appearance and effect has an ultimate influence on their character.

Examples of Arrangement.

If we take a typical arrangement of the trunking leading through a series of state rooms on one of the first-class Atlantic liners, it will be found that there are three series of rooms on each side of the ship, an inner cabin, an intermediate one, and one on the extreme outside. The outer cabin is obviously subjected to very considerable heat losses through exposure, the middle one may be considered neutral, but the inner one is subjected to radiant heat from the engine casing on the opposite side of the alley-way, which is considerable in spite of air spacing and lagging. Entirely different treatment is apparently required for each series, or the serious exposure of the outer cabin should be compensated for by direct heating; but this is rarely done. The general practice is to supply heated air in winter from the one unit supplying that section of the ship, and to balance the loss of heat from the exposed state rooms, louvers being set to supply a larger volume of air. To enable vitiated air to escape from the rooms, louvers are usually formed in the lower part of each door, and additional openings are occasionally provided in the lower part of the partitions to the alley-ways. From the alley-ways, extract ducts are carried up to extract fans situated in one of the upper decks, and additional extraction is obtained through the lavatory blocks. Take another example—second-class cabins on a ship built for Canadian traffic; here the air-supply is taken into the alley-ways, its admission to the cabins being obtained through louvers fitted at high and low level. In practice, this system is found more effective than the arrangement previously referred to, as the occupants of the cabins are not exposed to the draughts from the ventilation inlet; the difficulty of eliminating these draughts in such a confined space will be understood. Furthermore, these cabins usually have three or four occupants with divergent views regarding the advantages of fresh air. Again, the fresh-air supply trunks leading into the compartments in one of the largest

* An abstract of a paper read on Oct. 11th, 1922, at the autumnal general meeting of the Institution of Heating and Ventilating Engineers, Incorporated.

of H.M. warships are from 3 in. to 6 in. diameter. This is not a passenger ship, but some of those who have strong views on retrenchment will be cheered to find one Government Department setting an example in economy, although only in the expenditure of fresh air.

The Thermo-tank.

The pioneer of the application of combined heating and ventilating systems to ships is Mr. A. Stewart, of Glasgow, the inventor of the Thermo-tank, the introduction of which was an epoch-making event in marine history. This apparatus consists, briefly, of a steam heater in conjunction with a fan mounted on a hollow base, from which trunks are led to various parts of the ship; by an ingenious arrangement of valves, air from the fan may be blown direct into the base, or a portion may be by-passed through the heater, mixing with the cold air in the base, the proportions being varied according to the temperature required; or, alternatively, the fan may be arranged to exhaust from the base and discharge to the open air, the trunks thus becoming extract instead of inlet. This latter arrangement is a Board of Trade requirement for all apparatus used for ventilating third-class and crew spaces. Devices for humidifying the air by steam or water sprays are frequently fitted. Every credit is due to the initiative and enterprise of the firm who have installed this apparatus on an immense number of ships of all nationalities. There are several other makers of apparatus of a similar nature which are employed in the same manner. Particulars of most of them can be seen in the advertisement columns of the technical press.

Balance in Ventilation.

It is probably due to the efficiency of these various apparatuses that there is a serious tendency on the part of those responsible for the design of the installation to neglect the provision of adequate means of exhausting vitiated air. Unquestionably this neglect is the principal cause of the oppressive atmosphere which so frequently exists on passenger ships at sea, particularly in bad weather, when portholes and other means of natural ventilation must necessarily be closed. The large volumes of air introduced by the supply fans must, of course, find an outlet somewhere, but it does not necessarily follow that the fresh incoming air displaces the vitiated atmosphere. We have many examples of this in certain public buildings, and it is now the recognised procedure to provide what is practically a balanced system of ventilation, in which well-placed extract openings, situated generally near the sources of vitiation and connected to powerful fans, set up a continuous movement of air throughout the spaces dealt with and prevent the accumulation of air in stagnant pockets.

An example of an interesting and effective method of introducing light and air direct to state rooms is found in C deck of the *Aquitania*. The outer room is provided with a porthole, the next inner cabin having its ceiling slightly higher has a fanlight to the promenade deck, and the innermost cabin is fitted with a bulkhead projection which opens above the raised portion of the promenade deck. Each cabin is warmed in winter by means of a radiator. No artificial ventilation is employed, but the amount of light and air obtained is remarkable.

In the arrangement known as the Bibby cabin, when weather permits having the portholes open the way of the ship will induce a current of air, but there must be many occasions when the portholes have to remain closed for long periods; possibly, in addition to the closeness of the atmosphere, a fellow-occupant is suffering from the effects of the weather which has necessitated the closing of the porthole. Such conditions would not be tolerated ashore, even in much larger rooms, and it is not beyond the powers of the heating and ventilating engineer to improve very considerably the conditions aboard ship. Unquestionably, a large proportion of the passengers would be entirely free from sea-sickness if the atmospheric conditions which prevail in bad weather were maintained as they should and could be.

Popular as many of our fine ships deserve to be, they would be still more popular, and many more people would travel, if only the shipowners would attach more importance to this question. Those who have to do with ships are so accustomed to the conditions that they accept them as inevitable. The passenger who steps on board ship for the first time, in his fear of being considered a "landlubber," effectually conceals the horror he first experiences when he encounters that "ship smell." One frequently hears of people who felt bad as soon as they went on the ship, and did not feel fit until a day or two had elapsed. The coöperation of a ventilating engineer, experienced in the principle of air movements and control, would lead to the effectual removal of the "ship smell" and many of the other conditions which cause unnecessary discomfort to the passenger. The space available for each person is necessarily limited, and considerable skill and ingenuity are required to permit the ingress and egress of sufficient air volume without causing intolerable draughts.

Improvement can only be obtained by aiming at perfection. If the shipowner decides that conditions equal to the best land conditions are to be secured, such conditions will be reached ultimately, if not at the first or second attempt. The heating and ventilating engineer has first to balance his losses through exposure by direct heating, converted heaters being employed in draughty situations, such as entrances, &c., but in limited spaces radiant heat will be preferred, the use and knowledge of which is increasing daily. This method may be applied electrically on ships which are not sailing in the coldest regions. Direct heat losses being provided for, the air supplied need be warmed only to such temperatures as will maintain comfortable conditions in the public rooms or cabins, and where differential temperatures are required from the same unit of supply, cold air by-pass arrangements and mixing chambers would be employed. Ample exhaust systems to remove vitiated air and heat from around engine casings, &c., are essential, and these must be arranged so that vitiated air will, in no circumstances, be drawn into the accommodation.

PUBLIC HEALTH IN PALESTINE.[1]

THE first annual report (1921) of the Department of Public Health under the Government of Palestine commences with a sketch of the history and development of the service since its formation in December, 1917, after the occupation of Jerusalem and Jaffa, but before the termination of the campaign. Haifa, Nablus, and Galilee were occupied in November, 1918. Previous to the British occupation there had been under the Ottoman Government the outline of a medical service which would have sufficed for the primary needs of the country if in practice it had been carried out. The Syria and Palestine Relief Society, the American Zionist Medical Unit, and the American Red Cross Society did admirable work, pending the reopening of the old-established medical institutions in 1919 and 1920; and assisted the developing Government in dealing with epidemic disease, left by the opposing armies as a legacy to an already impoverished and stricken country. The Health Department of Government has re-established the sanitary service in nearly all the larger towns, organised a chain of infectious hospitals and epidemic posts, and laid the foundations for an anti-malarial service throughout the country. Bacteriological laboratories have been established at Haifa, Jerusalem, and elsewhere. Very comprehensive regulations and instructions have been issued, both for administrative and executive services; and success may be confidently anticipated, especially in view of the admirable spirit in which the reforms are intended to be carried out. "In formulating projects for the future an endeavour is made in advance to obtain the coöperation and assistance of the people, in order that the success of a scheme may not be jeopardised at its initiation, by local opposition, through issue of regulations or instructions that may be irksome to a community whose education in health matters is still undeveloped." It is most satisfactory to learn that "such procedure has already ensured the successful commencement of the anti-malarial campaign, ophthalmic treatment, and village sanitation, to each of which the people themselves have voluntarily subscribed when occasion has arisen, a fact which augurs well for the future development of public health in Palestine"; and (it may be added) is high testimony to the energy and tact of the officers of the department. Even the Arab population, "by careful and tactful dealing on the part of P.M.O.'s and their medical staff, have responded readily to sanitary enterprise and health projects, and have coöperated with the department of health in its campaign against dirt and disease"; and the Jewish Colonies under an orderly Government have shown very considerable progress in health matters, especially in anti-malarial work. "The greatest problems of health in Palestine are found in those diseases which are due to the neglect of centuries—malaria and trachoma . . . . moving masses of Turkish troops, almost all suffering from malaria, carried the disease from place to place, and through the agency of the anopheline mosquito, so plentifully breeding in innumerable rock cisterns, infected the whole population, already weakened by semi-starvation." Until drainage and alternative water-supplies are developed in towns and villages this disease will continue to prevail. In Gaza district 95 per cent. of the school-children suffer from trachoma; the policy adopted has been to concentrate on treatment amongst all school-children throughout the country, so that the rising generation may receive permanent benefit; while for the adult (whose attendance is generally irregular) a limited provision exists in the St. John Hospital at Jerusalem and in the travelling hospitals and dispensaries.

[1] Annual Report of the Department of Health, Government of Palestine, for 1921.

Climate of Palestine.

The special features of the climate of Palestine are briefly described. There are three very distinct climates: that of the hills of Judæa and Galilee, that of the plains and littoral, and that of the Valley of the Jordan. In the hills there is a bracing and healthy air throughout the year, a fine sun for nine months, and a keen, cold, and very wet winter. In the plains and littoral the summer is hot, damp, and enervating, but is saved by the almost constant west wind after noon. In the Jordan valley the heat varies from the dry heat of Tiberias to the more intense and oppressive heat of Jericho and the Dead Sea (1292 feet below the level of the Mediterranean, according to the Palestine Exploration Fund survey, not 1200 as stated in this report); and further south "to a very inferno of suffocating heat and desolation in the Ghor, which neither man nor animal can long endure." Malaria has been sufficiently controlled in the larger towns to present few dangers to those who sleep under a mosquito net, and even this is unnecessary in many places. Water-supplies must be viewed with suspicion. The climatic conditions, both in the hills and plains, are most desirable during April, May, and June, when the country is green and wild flowers are in bloom.

Infectious Disease.

With regard to incidence of infectious disease, the country is peculiarly liable to invasion from without, owing to the Mecca pilgrimage; influx of immigrants from Russia and Eastern Europe, where health conditions are deplorable; and the contiguity of Transjordania, where there is no organised medical service. Notification is carried out in towns where there is a district medical officer of health, and in villages the mukhtars ("officials," answering to our sanitary inspectors) have much improved in sending information in time for preventive measures to be taken. There was not a single case of cholera, only four cases of plague (with one death), only two cases of small-pox (one fatal), 35 of diphtheria (one death), and 13 of measles (one death). There were 63 cases of typhus, 46 in Jaffa town and district; the case mortality was 9·4 per cent. Of relapsing fever, there were 51 cases (32 at Haifa), none fatal. Scarlet fever was somewhat prevalent in Jerusalem in July and later (104 cases, with one death); for the whole country the cases notified were 115. Of "enterica" (by which true enteric fever appears to be meant) there were 368 cases, with 34 deaths; and of paratyphoid 91 cases, with three deaths; Jerusalem (146 cases), Jaffa (69), and Tiberias (61) were the places chiefly affected. Most of the cases at Tiberias occurred in immigrant camps, where sanitary precautions were at fault. Bilharzia infection in mild form has been found in Jaffa district, about 10 per cent. of the school-children being affected; infection of snails (*Bulimus*) was increased during the war by immigration of Egyptian labourers employed by the army.

Since January, 1919, there has been an organised system of licensing trades and industries intimately concerned with the public health; this has hitherto been confined to municipal areas, but is now being extended. At the end of 1921 the licensed establishments numbered 6582, of which 1671 were at Jerusalem and 1089 at Jaffa. Nearly half these shops come under the head of groceries, of which there were 617 in Jerusalem and 482 in Jaffa; the total throughout the country numbering 2911. Palestine possesses four cinemas, two at Jerusalem and two at Jaffa.

Vital Statistics.

In regard to vital statistics no census of the country has yet been taken; the figures given "practically amount to statements made by the mukhtars and heads of communities." The total population is stated as 744,131, of which 275,345 are dwellers in towns, and the remainder in districts. (According to Whitaker's Almanack, 1922, out of a total 700,000 there are 547,000 Moslems, 76,000 Jews, and 77,000 Christians.) Birth registration, at first looked on with suspicion as in some way connected with liability to compulsory military service or taxation (as in Turkish times), has greatly improved in the villages; the district rate (28·4) now exceeding the town rate (27·4); for the whole of Palestine the ratio was 28·1 per 1000. The highest town ratios were registered in Beisan (59·9) and Beersheba (54·0); the lowest in Tulkeram (12) and Haifa (9); in Jerusalem the ratio was 25·8, and in Jaffa, the next largest town, 29·4. The infantile mortality for Palestine as a whole was 154·8 per 1000 births, the ratio in towns (209·6 per 1000 births) being considerably higher than that in the districts (123·3). Among the large towns Jerusalem, with its population of 64,000, had an infantile mortality of 150·6 per 1000 births, practically the same as registered for the country as a whole; probably the registration has been more effective in Jerusalem than elsewhere. At Haifa the ratio was 422·1, while at the neighbouring Acre the mortality was only 227·0; obviously such variations (if correct) are due to local sanitary or insanitary conditions.

The general mortality from all causes in the larger towns (over 10,000 population) varied from 7·5 per 1000 at Safed to 28·0 at Gaza; at Jerusalem, with its comparatively large population, the ratio was 13·3; at Jaffa, the next largest town, 19·6. In the country districts the lowest registered ratio was 6·7, in Bethlehem; the highest 38·2, in Mejdel (near the coast, close to Askalon).

(To be concluded.)

PLAYS FOR CHILDREN.

SINCE one of the most famous books ever written for children was produced by a don whose life-study was mathematics and logic, the issue of three little books of fairy plays in dainty crisp verse from the pen of a professor successively of pathology and tuberculosis need not surprise us. Prof. S. Lyle Cummins has offered us original ideas on Bluebeard and Haroun al Raschid in the first volume; dramatic accounts of St. George and the Dragon and of the Sleeping Beauty fill the second volume, whereas the third volume is devoted to Goldilocks and the Three Bears and three shorter plays. Lewis Carroll defined a professor as one who professes to know more than he does, so that we may doubt whether the author's amusing conception of the psychology of Bluebeard or of the Dragon is correct; it is certainly unorthodox. The plays are published by Methuen at 1*s.* 6*d.* a volume, would be easy to produce, and delightful to act.

THE TREATMENT OF BAGHDAD BOIL.

Dr. W. A. Pospelow, Moscow, remarks in *Archiv für Schiffs- und Tropen-Hygiene* for August on the unsatisfactory variety of treatments recommended for cutaneous leishmaniasis, Delhi boil, Baghdad boil, or, as he names it, Askabad ulcer. He gives a list of the treatments recommended, under any of which, he says, some cases will not recover though some will, and these latter are apt to heal with too conspicuous cicatrices. He uses solid carbonic acid, applied very firmly to the deepest parts of the sore. He admits that others were before him in this advice, but he reports that this method has given him and his colleagues complete satisfaction. Healing may take a fortnight or two, but a smooth thin whitish scar results. Its results come quicker, are better, and are more cheaply attained than those of any other method.

ACRIFLAVINE PESSARIES FOR CHILDREN.

ARISING out of Dr. Simmins's communication in THE LANCET of Sept. 30th, Messrs. Boots inform us that no attempt is made to stock these pessaries at their branch establishments. They can be obtained at Station-street, Nottingham, and will be supplied, to medical men and institutions only, in boxes of 3 dozen, at the rate of 1*s.* 9*d.* and 2*s.* per dozen net, for the infants' and children's sizes respectively.

A SLEEP RECORDER.

AN ingenious if somewhat elaborate instrument designed to record the number of minutes or hours of sleep without the knowledge of the patient tested is described by W. Gerber in the *Münchener Medizinische Wochenschrift* of Sept. 29th. A thick layer of rubber is placed between one of the bed-posts at the head-end of the bed and the floor in order to allow some elastic play. The post, immediately over the rubber pad, is connected to a delicate lever which writes on a revolving drum. If the person on the bed changes his position and in this way alters the centre of gravity of the bed, the waves on the drum show the time of night or day when the movement took place. The slightest restless movement or change of position is thus recorded. It is admitted that movements may occur during sleep, but an expert at interpreting the curves is hardly likely, according to Dr. Gerber, to make serious mistakes as to their meaning. By tests on himself he has proved to his satisfaction that even when a sustained attempt is made to control restlessness, a wakeful patient cannot for more than half an hour or so keep so still as to simulate the curve of natural deep sleep. Curves taken from a neurasthenic suffering from insomnia, from a normal person who has slept well, from a patient under the influence of a narcotic, and several other typical curves are shown, and it would seem possible to use this method at any rate to convince a patient that he has underrated the amount of sleep obtained during a night or a series of nights. Dr. Gerber claims even that by the use of this contrivance, which can be connected with an electric bell in a distant room, so as to ring when the patient makes any considerable movement, in certain cases a night nurse might be dispensed with. A mechanical contrivance, however, can rarely take the place of a human watcher, and it is difficult to imagine conditions in which such an instrument could give as much information as even an occasional visit during the night by a competent and observant nurse.